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ORIGINAL ARTICLES.

THE DIFFERENTIATION OF THE CARDIAC INCOMPETENCY OF INTRINSIC HEART DISEASE AND OF CHRONIC NEPHRITIS.

Presented to the Section on the Practice of Medicine at the Forty-ninth Annual Meeting of the American Medical Association held at Denver, Colo., June 7-10, 1898.

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The recognition of an incompetent heart is usually not difficult. The dyspnea of exertion, the sense of post-sternal weight and constriction of the chest, the cough of exertion, and upon assuming the recumbent position, the enlarged liver with tenderness and often with pain or a feeling of weight in the epigastrium, the indigestion of portal congestion, the usually scant urine, the edema of the feet, or all of the above named conditions much aggravated until constant dyspnea with orthopnea, general anasarca, excessive physical weakness, marked palor, or palor and cyanosis give unmistakable evidence of cardiac weakness. The local signs of valvular disease may be absent or present. Signs of cardiac enlargement with dilatation of the chambers of the heart are present and may usually be recognized.

These phenomena are usually present in varying degrees of severity, in an incompetent heart. When due to intrinsic heart disease a valvular lesion or some other cause of dilatation of the heart and weakness of the heart muscle is present the chronic nephritis, cardio-vascular changes occur, and especially in the form classed as diffuse interstitial nephritis. In the latter stages especially of chronic nephritis the heart may become so dilated that it becomes incompetent, and the symptoms and signs enumerated appear. The urinary findings, the symptoms of uremia and other characteristic signs may plainly indicate the primary nephritis. In many cases, however, the differentiation can not be easily made, and in a few examples the diagnosis may remain in doubt until the side light of the dead house clears up the darkness. It is with these doubtful cases that this brief paper has to deal.

The following case will serve as a text and more clearly illustrate the subject.

Mr. W. McF.; aged 50; American; lawyer; married. Came to me on Sept. 12, 1894, and presented the following history:

Father died at 76 years; mother living, aged 72 years, and in good health. One brother died of acute pneumonitis. The father suffered from a tremulousness of the right arm, and the patient has had from birth a tremulousness of the right upper extremity, which is intensified by the presence of strangers, or by an attempt on the part of the patient to suppress it. The intentional trembling extends to the left arm also, during excitement or other emotion.

The patient has never had a venereal disease. He has never been addicted to the use of alcoholic beverages or tobacco in any form. He has always been well; has always had much to do in his profession, and has worried and fretted much about his affairs. He has always eaten heartily of all kinds of food. He has not taken physical exercise as a recreation.

For a month he has noticed shortness of breath after exercise, and an unusual throbbing of the heart after exercise, after a hearty meal and when excited. The strength has been noticeably less, and recently the ankles have been swollen in the evening. The tremulousness of the hands has become worse. Vision is less acute. The mind becomes easily tired. He dreads the presence of strangers, and fears to go into court with his cases. He has headache, with a sense of pressure about the head and the nucha.

Examination.—Height, six feet two inches; weight 250 pounds; face pale and eyes puffy; tongue large, pale and covered with a white fur. Muscles flabby; upper extremities tremulous, and this was increased by the excitement attendant upon the examination. Abdomen large, prominent and flaccid. Liver area apparently normal; spleen not palpable. Lungs normal, with a few moist râles over posterior dependent portions. Heart area difficult to ascertain because of overlying lung. Apex beat not palpable. Heart sounds pure but weak. No endocardial murmur. Heart action irregular; intermittent pulse, 96 per minute. No accentuation of second sound over pulmonary or aortic valves. Radial pulse, soft, moderate in size, compressible and intermittent. Moderate edema of both legs. A single specimen of urine showed, sp. gr. 1025. acid reaction, brownish color, small amount of albumin, no sugar, no bile. A few hyaline and granular casts were found in the deposit of the centrifuge.

He was kept quiet at his home upon a simple diet excluding meats. A more extended examination revealed diminution of the urine of twenty-four hours, with a relatively low specific gravity; lessened total solids, and one-half the normal urea. Albumin was constantly present with granular and hyaline casts. The heart presented the physical findings enumerated. The sphygmograph gave a poor and unsatisfactory tracing, because of the difficulty of applying the instrument to a wrist which was in a constant intentional tremor, and also because the heavy muscles and tendons covered the radial artery so fully that the pressure necessary to secure a result gave a tracing of no value. Strcyninæ sulphas, infusion digitalis and hydrogogue cathartics were used from the beginning. At first there was apparent improvement. The incompetent heart beat more regularly and forcibly, and the symptoms referable to a weak heart disappeared or became better. The urine increased in amount, but the total solids and the urea remained deficient, the specfic gravity low, and the albumin and casts were always present. He resumed his work in spite of protests to the contrary during January. From the beginning of the return to work he gradually relapsed into the condition which he first presented. During February, March and April he became gradually worse, and by the beginning of May he was practically water-logged. There was general anasarca, orthopnea, cyanosis, cough, a weak wavering pulse, feeble heart action without perceptible murmurs, accentuation of the aortic second sound, diminished bulk of urine, containing much albumin and many hyaline granular and epithelial casts, with less than one-half the normal amount of urea. There was sleeplessness but no headache, no nausea

and no disturbance of vision, with normal fundus. The general appearance was that of a chronic Bright's disease, with the pallor, puffy face and heavy expression so characteristic of the disease. On April 20 he complained of pain in the left side of the neck, and within twenty-four hours the left jugular vein, extending from the angle of the jaw to the clavicle, was felt as a cord-like body, which was tender to the touch. This was diagnosed a thrombus, and the diagnosis was verified by an extension of the thrombus into the left axillary and brachial veins. This complication was attended with much edema of the left upper extremity, which continued for about two weeks. Absorption of the thrombus seemed to occur and the circulation was fully restored within a month. During the time enumerated the patient was kept quiet in bed as much of the time as he would submit to. The diet was exclusively vegetable, with some milk. The medication consisted of strychninæ sulph. gr. 1/30, every four to six hours. Digitalis in infusion or tincture, off and on, Basham's mixture of iron in 3ss. every six hours, and hydrogogue cathartics, elaterin,—gr. 1/20 to gr. 1/10, every six hours, or the salines in doses sufficient to produce free, watery stools several times each day.

From the time of the absorption of the thrombus of the left external jugular, axillary and brachial veins the patient commenced to improve, and by June 15 he was entirely free from dropsy, the heart stronger, beat almost regularly, and the patient felt able to go about. The urine still contained albumin and many hyaline and granular casts, and a deficient amount of total solids and urea.

He was placed upon a diet for nephritis, excluding dark meats, and the iron and strychnia were continued. He spent the summer at the sea-shore. Upon his return home in September, 1895, his weight was 220 pounds; his color was good, and he felt perfectly well. An examination showed a steady heart action, with a good strong and soft pulse of 84 per minute. The heart presented no abnormal signs. The urine of twenty-four hours was as follows: quantity 56 ozs., sp. gr. 1022; reaction, acid; color, amber; urea 2 per cent. or 537 grains in twenty-four hours. No bile, no sugar, no albumin and no casts.

He was cautioned not to eat much meat, and to not fatigue himself by work.

He returned to his professional work, which was very exacting. He walked, for recreation and exercise, five or more miles per day. During 1896 he remained well. I saw him several times and examined the urine every month. Unusual professional care worried him much during the winter of 1896–7. In March, 1897, he again complained of the dyspnea of exertion, and the heart was not quite regular. There was a trace of albumin, but no casts in the urine at this time. Rest, with strychnia, gave him relief. He was out of Chicago for a vacation during July and August. Sept. 24, 1898, he again complained of dyspnea upon exertion and of palpitation of the heart. Weariness after mental or physical exertion and the old symptom of fear of people returned.

Examination showed some edema of feet and legs, a weak, irregular heart, and for the first time a systolic murmur at the mitral area, not transmitted, with accentuation of both the aortic and pulmonary second sounds. The urine contained a trace of albumin and a few hyaline casts, and a normal percentage of urea.

He was again placed at rest and submitted to the bed with better grace than during the preceding attack. In spite of physical and mental rest, heart tonics, free stools daily and a simple diet he became gradually worse. On December 25 he was suddenly seized with aphasia and slight loss of power in the right leg and arm. Within two hours he could talk incoherently but never regained the power of free expression by speech or writing.

The dropsy gradually increased and the heart weakness more pronounced. The heart murmur remained constant, and there was evidence of dilation of both ventricles of the heart. The urine was, as a rule, scant, from 20 to 40 ounces per twenty-four hours, with lessened solids including urea, but not much albumin and but few casts. In this attack the symptoms pointed chiefly to the heart as the chief offending organ. At no time in this attack did the urine present evidence of more than chronic venous congestion of the kidneys. He died suddenly on March 14, 189[illegible].

The clinical course, the physical signs and urinary findings in this case in the first attack pointed more to nephritis as the primary disease. The thrombosis of the left jugular and other veins, the absence of retinal changes, the primary edema of the left, the absence of the nervous phenomena of uremia, and finally the apparent recovery and status of good health for about eighteen months negatived nephritis. On the other hand, the last named phenomena, the relapse of the disease, the physical findings of the heart and the condition of the urine in the last attack pointed to an intrinsic disease of the heart, as a cause of the insufficiency of that organ.

The difficulty of the recognition of the primary cause of the incompetent heart is the intimate relation which exists between the cardio-vascular system and the kidneys. In all inflammatory diseases of the kidney there are cardio-vascular changes, which are most marked in the so-called granular kidney. These fibroid changes of the arteries and hypertrophy of the heart, when most marked are easily recognized by the physical signs and the characteristic urinary findings. In these cases, too, there is not, as a rule, a tendency to that form of heart incompetency which leads to dropsy. The arteries, palpable and invisible, partake of the fibroid change, and cerebral or other hemorrhage is more likely to occur than dropsy. Headaches, nausea, vomiting, cyclical diarrhea, retinal changes, mental excitement or hebetude of mind, coma or epileptoid convulsions are the rule in the later stages of the disease. In chronic tubal nephritis, on the other hand, while cardio-vascular changes are less marked, dropsy may occur with all the phenomena of an incompetent heart. The pallor of the patient, the puffy, waxy face, the retinal changes, the headache, nausea and vomiting, the cyclical diarrhea, the epigastric pain and pressure or sense of weight, the scant urine containing much albumin, with hyaline, granular, epithelial and fatty casts, with microscopic quantities of blood at times; and frequently all the signs of a dilated heart, with endocardial murmurs and a weak, rapid and sometimes intermittent or irregular pulse are not unusual phenomena.

The incompetent heart of an arterio-sclerosis which involves the coronary arteries alone or of the arteries of the heart and kidneys or of the general arterial system, may present phenomena so nearly like the clinical findings of one or both of the inflammatory condition of the kidneys mentioned that the

differentiation becomes difficult. There may be the thickened artery, the sustained full pulse, the hypertrophied or dilated heart, the retinal changes, vomiting, diarrhea, nervous phenomena, headache, albuminous urine with deficient urea, and the presence of casts of all varieties.

An incompetent heart from valvular disease, presenting first of all the physical findings, characteristic murmurs, dyspnea of exertion, cyanosis, dropsy, beginning in the lower extremities, enlarged liver, portal congestion with consequent indigestion, tendency to thrombosis or embolism, a concentrated albuminous and often bloody urine with hyaline and granular casts, is easily recognized when classical, but may present symptoms and clinical findings which make differentiation from primary kidney disease very difficult. In other words, kidney disease with cardio-vascular changes and an intrinsic heart disease with broken compensation and resulting venous congestion of the kidney, often present common symptoms and signs, which may indicate coincident primary involvement, or a primary disease of the one with resulting disease or disturbance of function of the other. Those phenomena common to both I have already enumerated. There are special phenomena, however, sometimes present, which although sometimes common to the two are more often the result of a primary heart or kidney lesion alone, and these signs or conditions are of some aid in differential diagnosis.

If the urine, even though scant, shows a relatively low specific gravity, with diminished total solids, lessened urea, much albumin and casts of all varieties.

If the arterial fibrosis is marked and the pulse full and sustained, or without arterial thickening if the pulse is sustained.

If the dropsical effusion is poor in albumin.

If the dropsical effusion contain urea in considerable amount.

If there is a tendency to inflammation of serous surfaces, pericarditis and pleuritis especially.

If there is a tendency to persistent morning nausea and vomiting of stringy mucus.

If there is tendency to periodic diarrhea.

If there is much headache, especially severe frontal and occipital pain.

If there is a tendency at one time to unrest and mental excitement or at another to somnolence or to coma.

If cerebral hemorrhage occur.

If the dyspnea of exertion becomes of the Cheyne-Stokes type. If severe epigastric pain occur.

If the eye ground shows the changes common in albuminuria, and if the patient present a pale, waxy puffy face and heavy expression, and a general anemia, the diagnosis is in favor of nephritis.

If there is a history of antecedent disease in which endocarditis may have occurred.

If the heart shows physical signs of valvular disease with characteristic murmurs.

If there is an irregular heart action persistent in character.

If the pulse is weak and not sustained with or without arterial fibrosis.

If the dyspnea of exertion is attended with cyanosis.

If there is a normal amount of red cells and hemoglobin or only a moderate degree of anemia.

If the dropsical effusion begins in the lower extremities, appearing during the day.

If the dropsical effusion is relatively rich in albumin.

If the dropsical effusion contains relatively little or no urea.

If there is a much enlargement of the liver and tenderness of the left lobe.

If the urine is scant, of high specific gravity, with much lateritious deposit, little or no albumin, a high percentage of urea, although the total urea of twenty-four hours is deficient; a few casts only, chiefly hyaline or finely granular.

If there is little or no headache, no eye ground changes, and if venous thrombosis or embolism occur the diagnosis is in favor of intrinsic heart disease.

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DISCUSSION.

Dr. COLE of California—I am much interested in the paper read by Dr. Billings. It is very difficult to decide whether the primary condition is one pertaining to the kidneys or to the heart; this is more especially true in advanced diseases. And I am glad to know that there are others that have this difficulty in making a differential diagnosis.

I am much pleased with the finest points in the differential diagnosis which Dr. Billings has made.

Dr. WEST of Galveston, Texas—It appears to me that this is one of the most interesting and practical subjects. It is a difficult question to determine whether the primary disease is one of the kidneys or of the heart. Diseases of these organs occur so concurrently. One point in the differential diagnosis and which asists in determining which is the primary disease, is the therapeutic test. If renal symptoms due to congestion of the kidney, such as albuminuria and other evidences of disturbed renal circulation appear, the patient should be placed upon proper treatment which tend more especially to remove the results of disturbed cardiac action and disturbances of the circulation; this consists in placing the patient in a horizontal position and giving him heart tonics, such as digitalis, strychnin, etc., and stimulate the emunctories, especially the bowels and skin; under that treatment in many instances the differential diagnosis will clear up. The urine becomes more abundant, there is a lower specific gravity, the casts disappear and the differential diagnosis can be made with perfect ease. In my experience, if these cases are allowed to progress for a long time, it is then impossible to make a differential diagnosis.

Dr. BOND of Indiana—This is an interesting subject. Dr. Billings brought out clearly all the prominent points. In one case the patient had kidney disease and still further arterio-sclerosis. One common factor in both diseases is arterio-sclerosis. I doubt if it is possible to have either disease without arterio-sclerosis; this is a common observation in these cases even before albumin or casts appear in the urine or a heart murmur is observed, showing deficient waste. Some years ago, 100 cases of this kind were observed where there was a deficiency of urea found in cases not suspected of having heart or Bright's disease. I think the first evidence of this disease which is constant is a deficiency in the nitrogenous waste. Instead of twenty-five grams of urea excreted in twenty-four hours, a man was found to be passing ten or fifteen grams; he was afterward found to be passing casts and there were symptoms of arterio-sclerosis; the albumin came on especially after exercise. One year afterward the heart was found to be affected.

Dr. BROWN of Illinois—I think it is very important that we should separate the two great forms of Bright's disease, the interstitial from the chronic. There is no disease in which we so often make mistakes in the early diagnosis as in interstitial

nephritis. For five or ten years there may be no albumin, no dropsy, no casts or anything to account for the polyuria which exists, and it is very difficult to find the cause. The diagnosis is made, not upon the symptoms directed to the kidneys themselves, but upon the symptoms that are referred to other organs than the kidneys—upon the subjective symptoms.

Dr. BRIDGE of California—What Dr. Bond has said is largely true. It is a matter of no great moment in these cases to settle the question whether the lesion is one of the kidneys or of the heart, because sooner or later lesions in both will occur in the same patient. Dr. Billings has set forth, as well as could be set forth, the means of making a differentiation. An important thing brought out in the paper was that there were two kinds of lesions and the fact that they result from similar causes. There is some poison in the blood containing effete matter, which lowers the vitality of the vessels of the kidneys, whereby these various lesions occur. In his case he had afterward a thrombus in the veins due to some injury to the lining of the vein, followed by certain changes in the blood, then atheroma which caused changes in the heart, producing dilatation and finally murmurs. What is this change? What metamorphosis is there in the lining of the vessels of the heart and kidney which make it predisposed to take on these changes?

As to the diagnostic value of casts, I feel sure that if the Doctor should use the centrifuge carefully, he would find casts in everybody's urine. It is no question of the presence of casts, but their number.

Dr. DAVIS of Chicago—The most difficult problem presented to us is to find which is the primary disease, that of the heart or of the kidney; especially is this true when the kidney and heart trouble appear to come on simultaneously. In certain cases the phenomena present enable us to make a diagnosis as to which is the primary lesion. On the other hand, as already has been stated, we find cases in which there are evidences of cirrhosis of the kidney with cardiac lesions, due to atheromatous condition of the vessels generally. Here symptoms come on which are important in that they show us which lesion predominates, whether the renal or the cardiac. These cases require the closest scrutiny and treatment.

Dr. BRIDGE—There were two points brought out in the paper of Dr. Billings, one, heredity, or the family tendency to the disease; second, the occurrence of some persistent disease which could lead to either heart or kidney disease. Frequently Bright's disease is a family disease. Also, the persistence of any disease which could lead to endocardial or myocardial disease would lead to heart disease as against Bright's disease.

The point raised in regard to the thrombus is a good one. Whether it occurs in the blood vessel of the body or the brain it indicates a tendency to heart disease. The non-existence of hypertrophy and valvular lesions in any case would point away from the heart and toward the kidney. In Dr. Billing's case might it not have been that the earlier disease was a diffuse nephritis in a patient with a weak heart which manifested symptoms of this weak heart? Afterwards the patient regained health, and then suffered from cardiac disease which ended his life. I believe that cases of chronic diffuse nephritis recover under appropriate treatment and the evidences of kidney lesion, previously present, will entirely disappear. Perhaps it may recur again or produce changes which will produce manifestations later on in the life of the individual.

I am glad that I have heard the paper; the differentiation between lesions of the heart and the kidney is of considerable importance as bearing on both prognosis and on treatment.

Dr. WEST of Galveston, Texas—I wish to speak of another class of cases of interstitial nephritis in which there is a low specific gravity, with an entire absence of renal symptoms or disturbances of circulation. There are no symptoms at all except a slight albuminuria. By the careful use of the centrifuge no casts are found. I examined a man for life insurance in whom there were no symptoms pointing to kidney disease; there was an albuminuria present. No casts were found after careful examination in several instances. One might suppose it to be a case of temporary albuminuria. I could not possibly recommend the man in spite of the fact that he gave no symptoms at all.

Dr. BABCOCK of Illinois—I should like to emphasize a single point in the differentiation between primary cardiac and primary renal cases; it relates to pulse tension. In these cases of primary renal disease there is an increase in the blood pressure which will have existed for a greater or less length of time, and if the pulse be carefully studied both by the sphygmograph and by careful auscultation of the aortic second sound much valuable information will be derived. In the case reported it was distinctly said that the primary examination of the heart showed an accentuation of the aortic and pulmonic second sounds. It seems to me that that statement was important. At the postmortem it was shown that the heart had been diseased for a long time, although the patient suffered from renal changes, as has been stated; perhaps there was a chronic diffuse nephritis which was recovered from; still the heart was the organ primarily at fault.

I have under observation a man aged 65 years who has an enlarged heart, who has renal changes, whose urine shows evidences of chronic interstitial nephritis. The arteries are also sclerosed. It has been a difficult matter for me to determine which organ was the one demanding treatment. The accentuation of the aortic second sound, the pulse tension and the fact that the heart endures exercise, also that the amount of urine responds pretty well, *i. e.*, the amount of the urine increases but the solids of the urine do not, these findings make me sure that in this man's case the heart is not the organ primarily affected. The heart is secondarily enlarged in response to the abnormal pulse tension which has existed for years. The treatment in such cases, to be successful, must be directed to the general condition largely, although if the heart is disproportionately weak, then this organ demands close attention and the greatest care.

Dr. ANDERS of Philadelphia—The subject of Dr. Billings' interesting paper is a large one and I simply would like to refer to one or two aspects of the same. The differential diagnosis, as drawn by the author of the paper, readily permits a differentiation of chronic parenchymatous nephritis and organic disease of the heart. Closely with the relationship between the heart and kidney disease stands another condition, namely, arterio-sclerosis. I should like to emphasize the fact that in cases of so-called interstitial nephritis in which lesions of the heart are associated they are from one common cause. One primary fundamental cause is general arterio-sclerosis. Now the troubles with the kidneys are secondary to the arterio-sclerosis; the same is true of the cardiac condition. In either case compensation ruptures and the left ventricle begins to weaken. In the case reported by Dr Billings this occurred the left ventricle was already weakened and so the phenomena reported appeared secondarily. This exists in cases in which primary condition of arterio-sclerosis is followed by rupture of compensation. Few are seen for the first time until after compensation has ruptured; here the presence of organic murmurs can be differentiated from murmurs due to primary valvular disease.

Dr. BILLINGS—I chose this subject because it was very interesting to me, partly because of the difficulty in the diagnosis of these cases, as already has been stated in the paper. It is quite important that a differentiation should be made. A man with an incompetent heart due to intrinsic heart disease, in some cases with a water-logged condition, may be given a hope of prolongation of life. In kidney disease do not forget that when the disease of the kidney pro-

gresses to such a stage that the heart becomes incompetent and the cardio-vascular changes are sufficient to produce this water-logged condition, the patient can not long exist. It is true that therapeutic tests may be of value, but the therapeutic test is like the dead-house test. A man with kidney disease with changes in the heart and blood vessels, who is in a water-logged condition, does not have perfectly normal urine, as can be proven. If a nephritis occurs and continues long enough to have cardiac changes, incompetent heart, bronchitis, general anasarca, etc., he may have hemorrhages in the brain and elsewhere. There has been a condition mentioned in which arterio-sclerosis, hypertrophy of the heart and sclerosis of the blood vessels, and other evidences of Bright's disease occurred and yet no Bright's disease. I have tried to write my findings of the case, and also stated in my conclusions that in kidney disease the arterial sclerosis was marked and the pulse full and sustained. I am gratified that the paper has received the amount of discussion it has.

DIABETIC GANGRENE.

Presented to the Section on the Practice of Medicine at the Forty-ninth Annual Meeting of the American Medical Association, held at Denver, Colo., June 7-10, 1898.

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The following cases of gangrene associated with diabetes which have been observed by me during the last few years, inspired me to look through the rather meager literature of the subject with care.

J. G., 62 years old, was a ruddy and hearty Englishman, who was habitually careless and negligent of himself and his health. In July, 1892, I found that he was a diabetic. As he promptly improved, gaining in strength and flesh, he did not persevere with the prescribed treatment. He was not seen a second time until September. The last joint of the middle finger of his left hand was then purplish red, swollen and painful. The skin on the ball of the finger was hard, slightly wrinkled and almost black. Pain was constant but not intense. The rest of the finger looked normal except at the first joint a red line of demarcation was discernable. This finger had not been scratched or injured. The gangrene was evidently spontaneous. His urine contained 1.3 per cent of sugar and had a sp. gr. of 1032. A week later he voided 2 quarts of urine, a quart less than before. It contained only a trace of sugar. Sensibility was entirely wanting in the last phalanx of the affected finger except at the sharply defined line of demarcation. The last phalanx was blue-black and perfectly mummified. Pain gradually disappeared. By the 24th of September the quantity of urine voided was normal, having a specific gravity of 1028 and containing no sugar. Sugar did not reappear until the end of October, when it occurred in 1.3 per cent. The urine had a specific gravity of 1031. For several days prior to this examination he used farinaceous food freely. When he again adhered to a moderately rigid diabetic diet, sugar disappeared from his urine. The last phalanx gradually underwent spontaneous amputation and separated completely from the healthy tissue the first of November. The stump healed nicely. I saw him occasionally during the next three months. He gained in flesh, strength and vigor. There was no return of glycosuria, although in January he suffered from a mild eczema of prepuce and scrotum. This man had tortuous temporal arteries and nodulation of the left radial. A sphygmographic tracing showed the low round-topped waves produced by atheromatous arteries. When his finger was first found to be gangrenous amputation was advised, but he refused to submit to it, and when he learned later that spontaneous amputation might take place, was still more unwilling to have the knife used.

B. J. B., 62 years old, a lawyer of prominence in one of the smaller cities of Michigan, consulted me in November, 1894. He first learned that he had glycosuria in 1892, when he was examined for life insurance. He was a large eater, moderate drinker, and eminently sedentary in habits. Ten years before he weighed 200 pounds; when he was first seen by me he weighed 177. For two years he had not varied more than two or three pounds from this weight. He felt in good health, except that for some months there had been an ulcer on a callous spot on the ball of his right great toe. An offensive slough of small dimensions had separated from it. When I saw it healing had begun. There was a shallow ulcer in the center of a yellowish callous. Almost no pus came from it. It caused no pain and was only tender when the raw flesh was touched. The toe appeared healthy. A sample of his urine had a specific gravity of 1040 and contained 2.5 per cent. of sugar. His arteries were hard but not nodulated. His heart was not hypertrophic.

I did not see this patient again until September, 1895. The ulcer under his toe never healed entirely. Several times it seemed almost well but became worse again. Alongside of the callus on which the ulcer was located was a superficial blister filled with bloody serum. He had recently had a similar blister on the sole of the foot. Both had come without recognizable cause. His urine contained a trifle less sugar. His general health was good; he weighed 180 pounds.

The next visit I received from him was in June, 1896. The ulcer remained unhealed. It was sometimes scabbed over and at others was covered by a small amount of pus. Its diameter varied from one-third to one-half of an inch. A sample of his urine contained 3 per cent. of sugar. In October of the same year, this patient was seen again. He thought his toe was well until about the first of September, when he was much worried by business cares and lost flesh, the ulcer opened again, and in a symmetrical place upon the left big toe a large blister formed. When the latter was opened and the dead overlying skin removed, a considerable excavation with raised edges and suppurating surface was disclosed. I did not see him again for a year, until last October. Both ulcers were about the same. The whole of the left big toe was purplish and slightly swollen. It was moderately tender and painful. In other ways he felt well. A sample of his urine had a specific gravity of 1033 and contained 2 per cent. of sugar.

This patient was seen by me at such long intervals that he can not be said to have had systematic treatment. Moreover, he was not abstemious as regards food, drink or tobacco. He kept the affected toes as clean as possible, and applied successively a great variety of antiseptic salves and powders. He had persistent glycosuria, but of very moderate grade of severity. He rarely made more urine than was normal, and the diabetic state caused no appreciable loss of flesh or ability for mental work. This case is interesting because of the character and chronicity of the ulcers, and finally, because of the symmetrical distribution of the ulcers upon both feet. When last seen by me, I feared the whole of the left great toe was about to become gangrenous.

Katherine E., 58 years old, born in Ireland, was first seen by me in July, 1895. For five months her right foot pained her. I found the toes and, to a less extent, the distal third of her foot reddened and painful. The pain ceased almost completely whenever she remained or the bed or lounge. There had been slight suppuration about one toe nail, and a superficial ulcer on one toe joint. Both these lesions had disappeared before I examined her foot. She had lost flesh during several months. She had never been stout, but was decidedly thin when she came to me. Her appetite was poor. She experienced no thirst. Her bowels were constipated. As far as she had observed her urine was normal. A week later the foot was less swollen and painful, but the toe next to the little one was numb, purplish red and looked as if about to become gangrenous. A sample of her urine had a specific gravity of 1028, and contained 1.5 per cent. of sugar. Before the end of August the last two phalanges of this toe were mummified. A line of demarcation developed at the second joint. On the toe next to the big one a moist slough formed over a space a quarter of an inch in diameter. She was making from three to four pints of urine daily. The glycosuria rapidly diminished and by the first of September ceased. Her foot remained about the same, causing varying degrees of pain. Slowly the mummified toe separated from the healthy tissue. The middle of December it was attached only by a few shreds of tissue, which separated with a little traction. The ulcer on the other toe was slowly improving. The stump of the amputated toe soon healed perfectly. A trace of sugar was discoverable in her urine at this time. In January the ulcer on the second toe grew worse, although there was no glycosuria. By the first of February it had opened into the joint. Toward the end of the month I picked from the opening a small piece of dead bone. After this the wound slowly healed. In March, the following month, a gangrenous slough formed on the ball of the great toe of the same foot. The whole foot from the instep to the toes was a dull purplish red. The toes were slightly swollen. The capillary circulation was extremely slow in the skin of the foot. Pain was not constant or considerable. Her urine contained a trace of sugar. During the summer she was comfortable, able to work and rarely troubled with pain in her

foot. In October her left foot (not the one first affected) became painful. The second toe was purplish red. From one edge of the nail it bled slightly. A red streak stretched up to the instep from the base of this toe. Her urine contained about 1 per cent. of sugar. The foot became diffusely red and more painful, the second toe lost sensibility, one edge sloughed away, the remainder slowly mummified. A month later this toe began to separate from the sound flesh and the one next to it also became gangrenous and dried up. The foot improved and was only occasionally painful. She kept her leg in a horizontal position almost continuously. Two months later both toes came away, having undergone spontaneous amputation, one at the first joint the other at the second. This woman also refused amputation by the knife.

In this case the disappearance of sugar from the urine, while the mummified toes were separating from the healthy tissue and its reappearance just before and when gangrene began afresh, was noticeable. The superficial arteries of this patient were tortuous and hard, but not noticeably atheromatous. Nor were there changes in the heart which would suggest the possibility of extensive atheroma. Undoubtedly, however, atheroma existed in all three of these cases and was the prime cause of gangrene.

The first and third cases typify well the milder forms of spontaneous gangrene in diabetics. The successive invasion of different toes in the last case is noteworthy. The diminution and even disappearance of glycosuria in both cases, while mummification existed and spontaneous amputation of the phalanges was progressing, is interesting. A similar marked diminution or disappearance of glycosuria I have observed in several cases when tubercular disease of the lungs was active. Both cases were upon diabetic treatment, which consisted mainly in a regulation of diet, the use of arsenical preparations and at times opiates.

The second case at first was one of *mal perforant*, which is an occasional complication of diabetes. Kirmission (*Arch. gén. de Méd.*, 1885) has reported seven cases of it associated with diabetes; Duvernoy (*Arch. gén. de Méd.*, Paris, 1891, 603), four; Gascuel (Thesis, Paris, 1886), fourteen; and Williamson, four ("Diabetes Mellitus," R. T. Williamson, published by Y. J. Pentland, London, 1898). Gascuel found in ninety-one cases of *mal perforant* that it was associated fourteen times with diabetes. The association is evidently no more an accidental one than the association of diabetes and gangrene proper. That there is a more frequent association of gangrene and diabetes than chance would cause, was first pointed out by Marchel in 1852. Diabetic gangrene occurs much oftener in the legs and feet than elsewhere. Marchel makes note of thirty-five cases with the lesion below the knees, seven in the lungs and three in the hands, out of a total of 133. In the remaining cases the lesions were very widely scattered. Hunt records three out of five cases of gangrene of the feet. In the cases which I find reported still more recently there is about the same proportional distribution of the lesion.

Sturgis (*Bos. Med. and Surg. Jour.*, 1891, 261, cxxiv) has described an interesting case of gangrene of the lip in a diabetic of 64. Sloughing occurred, but the wound finally healed. For three years the secretion of saliva had almost ceased in this patient's mouth, a condition which caused him great distress. During the period of inflammatory reaction after gangrene had occurred on his lip, saliva formed once more in his mouth. In this case Sturgis calls attention to the great diminution of sugar in the urine after sloughing had occurred. Those cases of gangrene occurring in the course of diabetes which are associated with or superimposed upon inflammation, are undoubtedly chiefly due to the low vitality of tissues in diabetics, and the consequent ease with which putrefaction takes place in them. The frequency of gangrene of the lungs in diabetics, who also have tubercular or other disease of the lungs, can be accounted for in this way. The cause of spontaneous gangrene, which is not preceded by visible wounds or infection, is of more interest. Neuritis and atheroma have both been assigned as causes of the spontaneous gangrene of diabetes. Both lesions frequently accompany diabetes. Godlee (Med. Chi. and Trans., lxxvii, 37) admits two varieties of spontaneous diabetic gangrene, the one due to neuritis, the other to atheroma. He recommends amputation at the knee, or above, in all of the latter variety, and operation close to the point of necrosis in the former. Davies Pryce (*Brit.*, 1893, 63) points to the almost constant coincidence of neuritis and atheroma in diabetes. Heidenhain's review of this subject is the most thorough of any in recent years (*Deut. Med. Woch.*, 1891, xvii, 1061, 1111, 1123, 1144, 1163). He believes that diabetic gangrene is in most, if not in all, cases due to arterio-sclerosis. His statistics are quite convincing. According to him, spontaneous gangrene in diabetics is pathologically identical with senile gangrene. Heidenhain also calls attention to the very frequent occurrance, even in early adult life, of arterio-sclerosis in diabetics. The cases which I have found reported are all in that period of life when this arterial lesion is to be expected. The only cases in earlier years of life are one, a girl of 19, in whom gangrene developed after an operation for cataract, and one of gangrene of the lungs in a child 8 months old (E. Wegli, *Arch. für Kinderheilkunde*, B. xix). In many of the cases of diabetic gangrene on record no mention is made of the condition of the arteries. In all in which mention is made of the the state of the arteries, arterio-sclerosis existed, with one exception, which was a case described by Rosenblath (*Arch. für Path. Anat.*, Berlin, 1888, cxiv, 202-210). Very numerous areas of circumscribed necrosis occurred upon the skin and mucous membranes of this patient. No vascular lesions were discernible at autopsy. Hebb (Westminster Hosp. Rep., lx, 1895, 113) describes another noteworthy case, which shows that every time gangrene occurs in diabetics, it is not due to either neuritis or arterio-sclerosis in the affected limb. Gangrene of the right arm developed with the symptoms usually caused by embolism. At the autopsy it was found to be due to an embolus consisting of a vegetation which had broken from an atheromatous ulcer in the arch of the aorta. Arteritis was general, but beginning, not advanced.

Williamson thinks that perforating ulcer of the foot in diabetes is due to neuritis. He bases his belief on clinical, not postmortem evidences. Mild neuritis is extremely common in diabetes and occasionally a severe form of lesion is demonstrable. In case two, just described above, frequently indescribable, uneasy and uncomfortable, but not painful sensations are felt in the legs. He had no knee jerk. There may be evidences of mild neuritis. Most frequently neuritis and arterio-sclerosis occur together.

Hunt says that areas of gangrene in diabetics are mapped out by a less defined line of demarkation than in cases of senile gangrene. The literature of the subject does not corroborate this statement, nor do my own observations.

Surgeons have been disinclined to operate upon

diabetics because of their susceptibility to infection. Recent experience has shown, however, that amputations can be performed upon them with good success, provided only sufficient care is taken to prevent infection. Heidenhain (*Deut. Med. Wochen.*, 1891, xvii) recommends that if gangrene is confined to the toes the physician wait until a line of demarkation develops, and if there is no evidence of general infection, that the dead tissue be allowed to separate spontaneously. If, however, the sole or dorsum of the foot is involved, the leg should be amputated at the knee or above it. This is a rule which my reading convinces me is correct. I, however, think that amputation of the toe, after a line of demarkation has become well established, is preferable to the tedium and pain of spontaneous amputation. The greatest pains should be taken to gently remove the sloughing tissues, and by the free use of antiseptics to limit putrefaction.

It goes without saying that the diabetes should receive as much attention as the gangrene. Treatment appropriate to it should be carefully carried out.

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THE DIFFERENTIAL DIAGNOSIS BETWEEN DENGUE AND YELLOW FEVER, WITH SOME ACCOUNT OF THE EPIDEMIC OF 1897 IN TEXAS.

Presented to the Section on Practice of Medicine at the Forty-ninth Annual Meeting of the American Medical Association, held at Denver, Colo., June 7-10, 1898.

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The diagnosis of disease is universally and justly regarded as the foundation stone upon which rests the entire superstructure of practical medicine. The question concerns the health, life or death of the individual affected, his family and friends, the public in so far as he may be a useful and influential member of society, and the physician as affording a basis for his prognosis and treatment. But there are occasions when far more momentous interests are involved in the correct diagnosis of prevailing diseases: a complete paralysis of commerce, the wheels of industry arrested, enforced idleness with consequent poverty and suffering of thousands, enormous depreciation in property values of every kind, universal fear and panic, and the possibility of wide-spread death and desolation. To the physician himself an error in diagnosis ordinarily involves results which are comparatively inconsequential; on the other hand, there are times when such an error means public denunciation and disapprobation. A correct diagnosis, even when opposed to commercial interests, may involve him in losses of reputation and business which may last for a lifetime.

This was the state of affairs in Texas during the summer and autumn of 1897. So long as yellow fever was supposed to prevail east of the Mississippi only, and that dengue was the epidemic disease in Texas, peace reigned; but when the trouble came to our own doors by the announcement of yellow fever in Galveston and Houston, there came the contest over the question of diagnosis, with visits of local experts from city to city, the gradual passing of the epidemic with no record of deaths from yellow fever, and the popular conviction of a stupendous error committed by those who believed in the presence of that disease. The majority, both of physicians and laymen in the State are firm in the conviction that dengue was the disease which was prevalent in Texas during the past summer; a minority believe that yellow fever also prevailed, but that owing to its mild form, indisposition to spread, exceptionally small mortality and resemblance to dengue was usually unrecognized. Confusion has arisen in the minds of many. They ask themselves, "Are the land-marks all swept away? Have the authorities led us astray? Has a new disease, *anomalous dengue*, made its appearance? Is there no such thing as dengue? Is the so called dengue a mild form of yellow fever? Does the latter arise de novo?"

The important issues dependent upon a knowledge and recognition of the truth upon these points render it not only pertinent but imperative upon the part of those who are familiar with the facts to study them in concert. Now that the obscuring mists due to commercialism, prejudice and passion, have for the most part passed away, we approach the subject from a scientific standpoint. It is with this end in view and in no spirit of dogmatism or self-assertion that I introduce the subject for consideration.

The following hypotheses have been assumed in relation to the recent epidemic:

1. The disease was dengue only. There was no yellow fever in Galveston, Houston, or the State of Texas in 1897.

2. There were anomalous cases of dengue, presenting all the symptoms of yellow fever, but proven not to be that disease, by the indisposition to spread from numerous foci and the low mortality rate.

3. During the progress of an intense epidemic of dengue throughout the State, in Galveston, Houston, and possibly other places, yellow fever made its appearance, and in consequence of its mild form and resemblance to the prevalent disease was generally unrecognized.

4. An imputed hypothesis that the epidemic of 1897 in Texas was yellow fever only.

5. A few cases terminating fatally, and others attended by marked jaundice and albuminuria were denominated acute infectious jaundice (Weil's disease).

In order to obtain definite information upon the subject, the following circular of inquiry was distributed to a limited extent. I regret very much that replies could not have been obtained from every infected place in the State, so as to have made the report an exhaustive one. The subjoined tabular statement, will, I trust, afford sufficient data upon which to base some definite conclusions. Following is the circular of inquiry:

"It is my intention to prepare a paper upon the 'Differential Diagnosis between Dengue and Yellow Fever, with some Account of the Epidemic in Texas in 1897,' to be read at the forthcoming meeting of the State Medical Association at Houston, and at the Denver meeting of the AMERICAN MEDICAL ASSOCIATION. If dengue prevailed in your community during the last season you would oblige me very much by furnishing me with information upon the following points:

"1. Date of outbreak; rapidity of spread; probable proportion of population affected; duration of epidemic; any evidence as to its origin.

"2. Any unusual meteorologic influences, as excessive heat or precipitation; local hygienic conditions.

"3. Symptomatology: *a*. The eruption: The character of, and present in what proportion of cases. *b*. Glandular enlargements: What glands usually involved, and in what proportion of cases. *c*. Hemorrhages: In what proportion of cases and from what sources. *d*. Nausea and vomiting: Severity and comparative frequency of; dysenteric symptoms noted. *e*. Albuminuria: In how many instances examined for, proportion of cases found, large or small amount; any other characteristics of urine noted, daily quantity, color, casts, blood, epithelial cells; any uræmic symptoms or other evidence of acute nephritis.

"4. Ratio of pulse to temperature.

"5. Jaundice, if noted, character of, and occurring in how many cases.

"6. Mortality, postmortem findings, if any.

"7. Did you have any reason to suspect the presence of yellow fever? If so, upon what evidence?

"8. Any difference in the severity as the epidemic progressed?

"As I am sending out but a limited number of these circulars, and the subject is of extreme interest and importance, a prompt and complete reply is requested."

Subjoined is a tabular statement of replies:

Data obtained from other localities are as follows: Gainesville, Cook County, on the extreme north central border, reporter Dr. J. E. Gilcreest, no epidemic, only a few sporadic cases of mild type, symptoms not noted. Terrell, Kaufman County, near N. E. border; Dr. W. H. Monday reports no cases. Dr. J. T. Wilson, Sherman, Grayson County, north central border, no dengue. Dr. J. M. Neil, Bonham, Fannin County, in same district as above, no epidemic; saw but one case, which was contracted at Paris. Dr. T. J. Bell reports from Tyler, Smith County, East Central Texas, very mild epidemic, commencing 15th of October, spreading slowly and affecting a small number, no evidence as to origin, no rash in most cases; no hemorrhages, glandular involvement, dysenteric symptoms or jaundice noted; no deaths.

Dr. J. H. Barham, Nacogdoches, east central; no epidemic, saw three cases only; one contracted dengue in Houston, two here, all in different families, no spread, eruptions in two, absent in one, nausea and vomiting in all; no tests for albumin; jaundice in all, well marked in one, moderate in one, slight in the other; suspected yellow fever in case from Houston; all recovered.

Summarizing results obtained from the foregoing twenty observers in eighteen places, we find as follows:

The epidemic of dengue of 1897 prevailed chiefly in southern central Texas within a radius of 200 miles from Houston, but extending and prevalent to a limited extent 300 miles to the extreme northern border. San Antonio, Houston and Galveston, followed by Schulenberg and Navasota, appear to have been most intensely infected, the proportion of population in these places affected varying from 75 to 90 per cent. Belton, Palestine and Huntsville followed closely with a percentage of 60–65. In the extreme northern and eastern portions of the State, as in Gainesville, Sherman, Bonham, Terrell and Tyler, there were but a few sporadic cases. At Dallas and Paris a very mild epidemic, affecting not more than 6 per cent. of the population. San Antonio, Galveston and Houston seem to have been the centers of infection, as appears from the following statement. Palestine, a railroad center about 150 miles north of Houston and 200 miles northeast of San Antonio, with double daily train service. Dr. Link states the probable origin was from these two cities.

Dr. Tabor reports from Bryan, which is about 100 miles from Houston with direct rail connection, that both the first and second cases were persons who had been exposed in Houston.

Dr. Thomason reports from Huntsville, about seventy miles north of Houston, with direct train service with the latter place and Galveston, that the first case was a young lady from Galveston, and that other foci of infection were soon developed by parties from Houston and Galveston. Austin's first case was a hotel clerk recently returned from San Antonio.

Dr. Lee reports from Galveston that his first case, seen July 29, was from San Antonio.

The first two cases seen by the writer, August 11, were in the persons of young men who had returned to Galveston from the Interstate Drill at San Antonio. Schulenberg is about equidistant from Houston and San Antonio, and may have been infected from either. Navasota is only about seventy miles from Houston. The intensity of the disease at San Antonio, the presence there of militia companies, not only from numerous points in the State, but of States east of the Mississippi, the coincidence in time (latter part of July) of the return of the militia to their homes with the outbreak of the disease, and the positive identification of the first cases in several places in persons who had returned from the encampment, is evidence going to prove that San Antonio was the initial point of infection in the State. As to the origin of the disease in the latter city I have no means of tracing it, but can only say that ample opportunity for conveyance of dengue was afforded by the collection there from July 19 to 26 of troops and visitors from points east of the Mississippi where the disease had made its appearance.

Further confirmation is also afforded by the facts above cited that dengue is an infectious, a portable and contagious disease, *i. e.*, the specific micro-organism which produces it may escape from the body of an infected individual and be transmitted by persons and things to other persons, thus speedily multiplying foci of infection and accounting for the rapidity of its dissemination. The fact previously observed that the progress of the disease is arrested by the advent of cold weather or frost, has also been confirmed by the consensus of statements herein presented. As to the effects of meteorologic and hygienic conditions, the majority of observers describe the weather as excessively hot and dry. The mean daily temperature in Galveston was nearly 8 degrees hotter during the month of October, 1897, than in the pre-

vious three years, and the continuance of unusual hot weather in November and December was the subject of general comment. Local sanitary conditions do not appear to have played any important part in the propagation of the disease. Dr. Paschal, however, calls attention to the excessively insanitary condition of San Antonio at the time of the outbreak, and Dr. Tabor ascribes the comparative immunity in Bryan (only 100 cases out of a population of 4000) to the extraordinary precaution to better the sanitary condition of the town. In regard to the symptomatology, I have not attempted to obtain information as to the complete clinical history of the cases under consideration, but rather to determine the distinctive value of those symptoms which have heretofore been regarded as of great importance in the differentiation between dengue and yellow fever, viz., the presence of an eruption, hemorrhages, nausea and vomiting, evidence of an acute nephritis, as albuminuria, scantiness, presence of casts, uremia, divergent pulse and temperature, jaundice and mortality.

There is almost perfect unanimity upon the part of observers as to the presence of an eruption, the proportion with this symptom varying from 25 to 90 per cent.; 75 per cent. would be a fair average. It is variously described as miliary, scarlatiniform, rubeoloid, erythematous, reddish papules, macular dermatitis, urticarial, desquamative, as localized upon the face and neck, upon the face and upper part of the body, with profuse perspiration, irregular as to time of appearance, coming on the second or fourth day, or end of the fever, hyperemia appearing on the first day. Dr. Peeples notes the fact that, while frequently absent in adults, an eruption was almost invariably present in children.

The consensus of opinion is that glandular involvement occurred to a very limited extent in this epidemic; the majority of observers not noting this symptom at all, but one observer mentioning enlargement of the cervical glands and tonsils in 25 per cent. of the cases; another the connection between enlargement of these glands and the rash; another observed swelling of parotids, sublingual, inguinal and suboccipital, especially in children; one observer noted enlargement of the submaxillary glands in 20 per cent. of his cases.

Hemorrhages.—With but three exceptions every observer noted the occurrence of hemorrhages. The nose, throat, gums, stomach, intestines, uterus and kidneys were the chief sources mentioned. The percentage in which this symptom was present varied from 1 to 10 per cent. Three or four observed black vomit.

Nausea and vomiting were notable symptoms and occurred in a large proportion of cases, varying from 80 to 90 per cent.; with but few exceptions it was described as severe, excessive, incessant, almost universal, etc.

Condition of the urine.—Unfortunately, observations pertaining to the urine were made so infrequently and imperfectly as to render them of but little value. Most of the observers made no examination at all, a few examined for albumin only in the worst cases. Dr. Wilkinson of Galveston, out of 500 cases, says he tested for albumin in many and found it absent; sp. grav. was generally high. Dr. Lee, Galveston, states he examined for albumin in 50 cases out of 490. Eight of these had previous kidney trouble; of the remaining 42, 20 showed slight albuminuria on the third and fourth days; and in 6 albumin was present in large amounts. Dr. J. M. Coble, Dallas, examined the urine in 25 per cent. of his cases and found slight albuminuria in 10 per cent. of them.

Drs. Wilson and Harris of Navasota only made urinary examinations toward end of the epidemic, in about fifty cases; in forty of these albumin was found in good quantity. The urine was diminished in quality and high colored; casts and blood cells found in three cases and uremic symptoms in four. Dr. Taylor Hudson, Belton, tested the urine only in a few suspicious cases and found albumin in several; the urine was usually dark and diminished; uremic symptoms pronounced in several. Dr. D. L. Peeples, Navasota, found albumin from slight trace to abundance, in some cases with almost total suppression, color varying from a deep straw to color of blood. Dr. R. R. Walker, Paris, found albumin in 25 per cent. of his cases. Dr. W. W. Walker, Schulenberg, only tested for albumin in worst cases; found it in ten, in some in large amounts. The remainder of reporters failed to note condition of the urine.

If, however, dengue was the only disease prevalent, albuminuria is not the rare symptom in that disease as heretofore has been the opinion.

Ratio of pulse to temperature.—Ten out of sixteen observers mention that the pulse was abnormally slow in proportion to the pyrexia; three state the ratio normal and three made no note of the symptom.

Jaundice.—Four reporters mention this symptom as present in about 7 per cent.; one, Dr. Wilkinson, Galveston, mentions jaundice as being of frequent occurrence and of severe grade after October 1. One notes it as generally present of mild grade; another states it was mild in 10 per cent. and severe in 2 to 5 per cent.; one found it more or less present and seven failed to note icterus at all.

Mortality.—There is almost perfect unanimity as to want of mortality in the recent epidemic, the few deaths occurring were usually ascribed to some complication. As regards progressive severity a majority state there was no marked difference; a few assert aggravation in the beginning and in the midst of the epidemic. Dr. Wilkinson notes mildness in August, increased severity in September, progressing to violence in October. Only two or three out of the twenty suspected the presence of yellow fever. As to the early symptoms: The onset was usually sudden, attended by slight rigors or chilly sensations with more or less severe headache and pains in the back, limbs and joints. As regards the paroxysm there is a remarkable discrepancy in the statements of Drs. Lee and Wilkinson, each of whom treated about five hundred cases. Dr. W. (I quote his exact language) states: "The fever in all my observations contained but one single paroxysm; there was no secondary fever from first to last; it departed by lysis, after three or four days duration and never returned, except in cases of relapse several weeks later." Dr. Lee, on the contrary, says: "In a large proportion of the above mentioned cases two paroxysms were noticeable, the first coming on usually without positive chill or chilliness; temperature usually high in the beginning became, after slight remission, high again toward the end of the attack."

It is difficult to reconcile such contradictions. The probabilities are that there is no invariable rule in regard to the paroxysm. In ten cases at the Sealy

hospital, where careful thermometric observations were made, there was one paroxysm only in seven; in one there was an exacerbation in the afternoon of the day following that, when the temperature reached normal; in one the fever was of remittent type, rising at midday for three successive days; in one there was a slight return of fever on the evening of the first day after the temperature reached normal.

Before proceeding to make any deductions from the foregoing, it will be instructive to present a brief review as to the statements of authorities upon the differential diagnosis of the two diseases under consideration. An authority upon this subject I understand to be one who has had the opportunity of studying them at the bedside. I shall not attempt any complete bibliography, but the following I think will show what has been the accepted teaching:

H. D. Schmidt on dengue, Pepper's System of Med. Ed. 1885, page 884-885, says the temperature steadily rises in yellow fever, it is remittent in dengue; pulse in yellow fever falls on third day, while the temperature continues to rise, in dengue on the contrary the pulse rises with the temperature. In the condition of the stomach also dengue considerably differs from yellow fever, for while in the latter disease this organ is almost always irritable, and vomiting frequently present, it is but rarely affected in dengue. The urine in yellow fever very frequently contains albumin as soon as the third day, in dengue almost never. Finally the absence of jaundice and the appearance of the eruption on the fourth or fifth day removes all doubt about the nature of the disease.

Sternberg on yellow fever, American System of Med., Vol. 1, page 290: "If a diagnosis has not been made before, the symptoms which characterize the second period of the disease should serve to differentiate it from all forms of malarial fevers. The cool and usually moist skin, the abnormally slow soft pulse, the gastric distress, and pain on pressure in the epigastrium, the yellow tinge of the conjunctiva, and the albuminous urine in a patient whose temperature is normal or subnormal, following a febrile paroxysm as represented in charts, certainly furnish a clinical picture which should be recognized." Speaking of dengue, page 291-92, he says: "It also is characterized by a febrile stage of comparatively short duration, but the characteristic symptoms of yellow fever are absent. Albuminous urine, stage of depression, hemorrhages, etc."

Matas, Keating's Cyclopedia, Vol. 1, page 894, quotes Holliday who makes a comparison of the symptoms of the two diseases after a careful analytical study of the opinions of over sixty physicians who had a long experience of both diseases in New Orleans and other parts of Louisiana as follows:

YELLOW FEVER.	DENGUE.
Temperature rising regularly.	Temperature rising irregularly.
Tongue white center, red edges pointed.	Tongue broad white indented edges, rarely red.
Stomach irritable, vomiting frequent.	Vomiting rare.
Conjunctiva congested, jaundice appearing early.	Conjunctiva rarely red, jaundice never observed.
Secretions all suffering, urine scanty, often albuminous, suppression frequent.	Secretions natural, urine *usually* normal, sometimes exceptionally traces of albumin.
Hemorrhages frequent and alarming, black vomit an urgent symptom.	Hemorrhages slight, black vomit very rare.

In regard to the condition of the urine in dengue, Matas observes (see foot note, page 889, Keating) "that in tropical pyrexiæ it is always a matter of great importance, both from the diagnostic and prognostic standpoint." The earliest observers of dengue satisfy themselves with noting simply the color, quantity and reaction, and these are usually most diversely described. Other observers are, however, much more satisfactory. Thus Morgan noticed a specific gravity 1004 to 1040, acid, *non-albuminous;* Chipperfield, acid, sp. grav. av. 1010, *non-albuminous.* Goodeve detected an occasional trace of albumin in four cases in the Indian epidemic of 1853, while Charles and Martialis *never detected* it in the epidemic of 1872. In China at Amoy, Muller and Manson *failed to find albumin.* Albuminuria was detected *only once* in the epidemic of Martinique in 1860, and twice in Cochin China by French observers in 1875 (Mahe). Albuminuria was observed exceptionally by Holliday and his co-laborers (loc. cit.) in Louisiana. Enough has been said to prove that albuminous urine is an exceptional occurrence in dengue, which differentiates it markedly in this respect from yellow fever."

Eugene Foster, Ref. Handbook Med. Sciences, Vol. 2, page 397, gives the following summary of the points of similarity and dissimilarity in dengue and yellow fever.

"In time of appearance, and generally in geographical distribution they seem related to one another. Dengue has, however, prevailed in Asia and Egypt, where yellow fever is unknown. Both diseases are arrested by severe frosts. Both dengue and yellow fever are diseases characterized by one febrile paroxysm." In order to show contrast, the symptoms will be arranged in parallel columns:

YELLOW FEVER.	DENGUE.
The fever rises steadily.	The fever rises regularly until the acme is reached, when a short stadium of a few hours occurs, followed by a remission, when a second rise of temperature takes place, but not reaching the former height.
The pulse becomes slower, while the temperature rises.	The pulse increases in frequency with the rise of temperature.
Fever lasts seventy-two hours.	Fever lasts five to eight days.
Vomiting frequent.	Vomiting rare.
Eruption rare.	Eruption common.
Jaundice almost invariably present.	Jaundice extremely rare.
Urine scanty, frequently albuminous and often suppressed.	Urine generally high colored, normal in quantity, free from albumin and never suppressed.
Hemorrhages frequent, alarming and often fatal.	Tendency to hemorrhages from nose, gums, bowels, lungs and womb, with occasional black vomit, but hemorrhages, as a rule, insignificant.
Often fatal.	Proverbially non-fatal.
One attack protects from another.	One attack not protective against another.
Not protective against dengue.	Not protective against yellow fever.

Quoting Sternberg again from his article in Buck's Reference Handbook, Vol. VIII, page 60, speaking of the diagnosis of yellow fever, says: "Of the three prominent features making up the clinical tableau of yellow fever, viz., a yellow skin, highly albuminous urine and black vomit, only one is a constant character which can serve in establishing the diagnosis in mild cases; this is the presence of albumin in the urine. At some period in the disease, even in the

mildest cases there will be a distinct trace of albumin in the urine as shown by the usual tests, and this will be usually sufficiently abundant to leave no doubt in the mind of the observer as to the nature of the precipitate. The value of this test in the differential diagnosis is indisputable. It is true that a trace of albumin is sometimes found in the urine of severe cases of fevers of malarial origin, but in cases of yellow fever of equal severity as compared with these, the precipitate would, as a rule, be very abundant on the third or fourth day of sickness, forming a deposit to the extent of one-fourth to one-half of the contents of the test tube, or even more. At the same time a microscopic examination would show the presence in the urine of numerous granular casts from the tubuli uriniferi. These are found also, although in a smaller number, in the urine of the milder cases during the second stage of the disease."

"The second stage of the disease is commonly, however, well marked in non-fatal cases, and is its most characteristic feature, the remarkably slow and soft pulse, the evident prostration of the vital powers, although the patient may be comfortable, and even cheerful and desirous of getting up and taking food, the yellow tinge of conjunctivæ and skin (not always present), the tenderness on pressure in the epigastric region, and often a feeling of weight and distress, attended with intense thirst and vomiting of a transparent acid fluid, or of the characteristic black vomit, the tendency to passive hemorrhages from the mucous surface of the mouth or nose, oozing of dark blood from the gums or lips, or sides of the red and fissured tongue; the scanty urinary secretion, and the presence of albumin, usually in considerable amount, constitutes an unmistakable ensemble of symptoms."

It appears from the above quotations that the symptoms which have heretofore been relied upon to differentiate between yellow fever and dengue are the occurrence in the former of albuminuria, the characteristic facies (inclusive of jaundice), the divergent pulse and temperature, excessive irritability of the stomach, and increased disposition to hemorrhages. The absence of such symptoms in the main, the presence of an eruption in a large proportion of cases, and a want of mortality are characteristic of dengue. In the epidemic herein described we have an apparently inextricable confusion. A wide spread epidemic of fever presenting the symptomatology of yellow fever in many instances, but with the eruption of dengue and practically with no mortality. One of two deductions is irresistible, either the two diseases approximate more intimately in their symptomatology than has heretofore been taught or yellow fever of remarkably mild type has been associated to a greater or less degree with dengue; granting the reliability of the testimony herein presented both conclusions are warrantable. I shall not attempt here to solve this problem so far as the epidemic of the interior is concerned, but will present the evidence which is convincing to my mind that the latter proposition is true as to the coast cities of Galveston and Houston. Before doing so however, let me refer briefly to certain facts in regard to the epidemic east of the Mississippi taken chiefly from the report of the Louisiana State Board of Health, dated Dec. 6, 1897. The first death from yellow fever was reported by Dr. J. M. Hollowway of Louisville, Ky., about August 18, the patient having gone to that city from New Orleans via Ocean Springs where the disease was supposed to have been contracted. Subsequently to which, four official investigations were made as to the nature of the epidemic at Ocean Springs resulting as follows:

1. The visit of Dr. S. R. Oliphant, president of the Louisiana Board of Health August 22, 1897, who reports finding an epidemic had been prevailing the previous six weeks, that 400 cases had occurred in the practice of two physicians, without a single resultant death, and that it was considered to be dengue of mild type.

2. On August 23 a commission of experts from the New Orleans Board, from the Mississippi State Board and others sign a report which concludes as follows: "After a careful inspection and examination of the aforesaid cases, we are positive in our opinion that the disease is dengue, and that in no case is there or has there been any symptoms which would lead to even a suspicion of a more serious disease."

3. On August 27, we have a report of another commission, to which the name of the health officer of Alabama is added, stating: "In reply to your request we have again investigated the fever at Ocean Springs, which is abating and absolutely without fatality. The conclusion arrived at was *that it is not yellow fever.*"

4. On September 6, we have the following statement: "The patient died Sunday night, and early Monday morning the expected autopsy was performed by the bacteriologist of the board in the presence of the medical gentlemen assembled. Unmistakable evidences of yellow fever having been revealed, we arrived at a unanimous verdict."

According to Dr. Oliphant the grand total of cases in New Orleans did not reach 2000, nor the deaths 300, a mortality of 15 per cent. based upon reported cases which would doubtless be much smaller if founded upon the actual number. Another significant fact noted by Dr. Oliphant in the epidemic, which verifies the history of previous ones in New Orleans and elsewhere, is that yellow fever does not burst forth suddenly, but gathers volume and force after smoldering for a time, e.g. it was introduced into Edwards, Miss., August 8, but gained no headway until the middle of September. Confirmatory as to the remarkable mildness of the last epidemic [1] Dr. L. Sexton writes from New Orleans September 20, "*Our present death rate is lower than in any epidemic of yellow fever*, if the present death rate prevails throughout this visitation we will have to send around a subscription list for our undertakers."

What bearing have these facts upon conditions as they existed in Texas? In my opinion they are convincing when taken in connection with the clinical history of certain cases that the epidemic upon the Texas Gulf Coast was similar to that in Louisiana, Mississippi and Alabama, the results being modified by the late introduction of yellow fever infection and by the presence of unfavorable conditions for its dissemination. It should be remembered that the declaration of quarantine by Galveston was made on September 10, nearly a month after the recognition of yellow fever at Ocean Springs, that the latter place is directly upon a common route of travel between eastern and Texas points, and that a month subsequently the diagnosis of yellow fever in Galveston and Houston was made by Dr. Guiteras. Under such circumstances it is not surprising that yellow fever infection should have been introduced into Texas; nor should it be a matter of wonderment that it should not have

[1] American Medico-Surg. Bulletin, Oct. 10, 1897, page 903.

Observer and location.	Date of outbreak; proportion of population affected; duration; origin.	Meteorologic and hygienic conditions.	Symptomatology.
Dr. C. H. Wilkinson, Galveston. Southern coast. Pop. about 50,000; treated 500 cases. "History of dengue epidemic in Galveston in 1897."	July 15; commenced in light form; suddenly, August 15, becoming more virulent and spreading rapidly; 50 per cent. of population affected.	Weather excessively hot and dry. Sanitary condition said to be good.	Eruption miliary, coming within 48 hours, appearing especially on face and upper part of the body, profuse perspiration. Fever of paroxysm lasting 3 to 4 days, declining by lysis. Glandular involvement not noted. Hemorrhages frequent, especially from the nose also from stomach and bowels. Nausea and vomiting noted, especially after Oct. 1. Many specimens of urine examined; high specific gravity; albumin absent.
Dr. Geo. H. Lee, Galveston, has notes on 490 cases. From article "Dengue or yellow fever." Reprint from N. O. Med. and Surgical Journal.	First case observed July 29, from San Antonio. Subsided latter part of November. Probably spreading from San Antonio.	Not noted.	Eruption occurred in two stages, first day hyperemia; in 80 per cent. mild macular dermatitis coming on second to fourth day, ending in slight exfoliation. Affection of glands noted in but few cases. Hemorrhages in about 10 per cent., from nose, gums, throat, uterus, bowels and stomach one case, kidneys three cases. Albumin examined for in about 50 cases, 8 of which had previous kidney trouble; 20 out of the 42 had albumin on third and fourth day; in 6 in large amounts. Other characteristics and uremic symptoms not noted.
Dr. J. M. Coble, Dallas, D. Co., about 200 m. n. of Houston, R. R. center; pop. about 50,000.	Date of first case September 22; spread rapidly to various parts of the city, affecting *c.* 6 per cent. of the pop. Arrested by cold weather November 1.	Weather continued warm until Nov. 1. Local hygienic conditions poor in some sections.	Eruption noted as slight in about 4 per cent. Submaxillary glands enlarged in about 20 per cent. Hemorrhages not noted, neither dysenteric symptoms; urine examined in 25 per cent. and slight albuminuria found in 10 per cent. of these; slight nausea in a number.
Dr. Frank Paschal, San Antonio, Bexar Co., S. W. Tex.; *c.* 150 miles from coast; elevation *c.* 1000 ft.; pop. *c.* 5000.	Outbreak began Aug. 1; spread rapidly, soon affecting 75 per cent. of the pop. Lasted until about Oct. 20. Possibly introduced by attendants upon the interstate drill July 19-26.	Weather excessively hot and dry. Sanitary condition very bad; no sewerage; San Antonio River polluted, stinking.	Eruption present in possibly 90 per cent., coming on at end of the fever erythematous. Hemorrhages and glandular involvement not noted. Nausea and vomiting frequent and severe; present in 33⅓ per cent. No dysenteric symptoms noted. Albumin not examined for. No uremic symptom noted.
Dr. W. L. Peeples, Navasota, Grimes County, about 70 miles north of Houston. Population, 5000.	Outbreak about September 1, attacking negroes only until middle of the month, when it spread to all classes and ages, affecting probably 50 per cent. of the population.	Nothing noted.	Attack sudden, high fever, low pulse, severe epigastric pains, excruciating pains in back, head and extremities, the latter less severe. Nausea and vomiting incessant. Eruptions frequently absent in adults, almost invariably present in children. Glandular enlargements frequent in the neck and surrounding regions; hemorrhages quite frequent from gums, stomach, nose, bowels, uterine appendages and kidneys. No dysenteric symptoms in reality. Albumin, from slight trace to abundance in urine, with almost total suppression (readily yielding to proper diuretic treatment), varying from a light straw to blood color, no casts and frequent uremic symptoms. Prognosis always favorable (comparatively speaking). Albuminuria did not deter prompt recovery, according to my experience.
Dr. R. R. Walker, Paris, Lamar Co., near N. E. border. Pop. *c.* 10,000.	Epidemic slight; began in July and continued until frost.	Nothing unusual noted.	Eruption present in but a small percentage, reddish papules appearing first upon face and exposed surfaces. Glandular involvement and hemorrhages not noted. No symptoms of dysentery. Albumin present in 25 per cent. of the cases; nausea and vomiting in 50 per cent.
Dr. Geo. R. Tabor, Bryan, Brazos Co., *c.* 100 miles N.W. from Houston; population *c.* 4000.	First case reported Oct. 10, a Polander, having been exposed a week previously in Houston. The second case, a German, also from Houston. A week later a dozen cases and in the next thirty days about 100. The disease disappeared upon the advent of cold weather.	Weather dry, not excessively hot; hygienic conditions good.	Eruption present in 50 per cent., scarlatiniform and urticarial, glands involved in two cases only, cervical. Hemorrhages, percentage small, in one case resembled black vomit; coagulated blood in stools in this case. Nausea and vomitng severe in most cases, with excruciating headache. Albumin was examined for in only two cases and not found.
Dr. Taylor Hudson, Belton, Bell Co., *c.* 150 miles N.E. from Houston and San Antonio; population 5000.	Began about September 1, spread to all parts of the town in twenty days, affecting 60 per cent. of the population. No evidence as to origin.	Nothing unusual as to weather; hygienic conditions of the town good.	Eruption not described, present in 50 per cent.; glands not often involved; hemorrhages noted occasionally from the nose and uterus; nausea and vomiting in 80 per cent., and in 20 per cent. severe; dysenteric symptoms rare; albumin only tested for in a few suspicious cases and found in several; urine diminished, dark color, no casts noted; uremic symptoms pronounced in several cases.
Drs. Wilson, Harris and Young, Navasota, Grimes Co., *c.* 70 miles N.W. from Houston; population *c.* 5000.	Epidemic began about September 15, affecting about 75 per cent. of population; rapid spread; declined about December 15; no evidence as to origin.	Weather dry, no unusual heat; local hygienic conditions good.	Only a few examinations for albumin made, none found; no uremic symptoms noted. *Eruption* present in about 25 per cent., resembling that of scarlatina and measles, at times confined to face and neck. Cervical glands and tonsils enlarged, as a rule, in cases with rash. *Hemorrhages* from nose, uterus, bowels, gums and kidneys occurred frequently. *Nausea and Vomiting* in about 80 per cent., often obstinate and severe. *Albuminuria* examined only toward close of epidemic in about 50 cases, present in 40 in good quantity; diminished quantity and high color of urine, casts and blood cells in 3 cases; uremic symptoms in 4.
Dr. Thos. G. Duncan, Victoria, Victoria Co., *c.* 125 miles S.W. from Galveston and Houston, near coast; population *c.* 2500.	Epidemic began about September 15, affecting about 33⅓ per cent. of population in town and smaller proportion in the country. No evidence as to origin.	Weather dry and hot, but not unusually so; haziness of atmosphere was noted similar to that of 1867.	*Eruption* in part of cases erythematous. *Glandular* involvement not noted. Heard of one case of black vomit; nausea marked and almost universal; dysenteric symptoms not noted; no urinary symptoms noted.
Dr. E. W. Link, Palestine, Anderson Co., *c.* 150 miles north of Houston; railroad center.	Epidemic commenced about middle of September; spread rapidly, affecting about two-thirds of the population. Probable origin San Antonio and Houston.	Weather hot and dry; local hygienic conditions bad.	Measly eruptions generally present; enlarged glands not noted; hemorrhages in a few cases from nose and bowels; nausea and vomiting not noted often; dysenteric symptoms in a few cases; albuminuria and other urinary symptoms not examined for.
Dr. W. W. Walker, Schulenberg, Fayette County, about midway between San Antonio and Houston. Population about 1500. . .	First case August 19, 90 per cent. of population attacked, declined about Oct. 10 for want of material, then spread to the country and continued until Dec. 10.	Weather dry, little wind, temperature reaching 102 degrees in shade. Local hygiene good.	*Eruption* present in 90 per cent., irregular as to time of appearance and character. *Glandular involvement* noted in about 4 per cent., especially in children, parotid, sublingual, inguinal, suboccipital. Suppurated in two cases. *Hemorrhages* occurred in about 4 per cent. from the nose, gums, rectum, in one generally from mucous membranes, two so severe as to require repeated injections of ergotin. In three cases black vomit. *Stomach*, nausea and vomiting almost universal. Severe dysenteric symptoms in a few cases. *Albumin* tested for only in worst cases and found in about ten, in some in large amounts.
Dr. J. W. Thomason, Huntsville, Walker County, about 70 miles north of Houston. Population about 2500. .	Sept. 21, first case a young lady from Galveston, it was several weeks before other cases occurred in the same house though it was full of young ladies. Other foci of infection were developed by parties from Houston and Galveston, rapid spread after above date. About two-thirds of the population affected. Duration of epidemic about three months.	Weather excessively hot and dry, no other form of sickness prevailing.	*Eruption* present in ⅔ of cases; erythematous, miliary, scarlatiniform and rubeoloid. *Glandular* enlargements not noted. *Hemorrhages*, of 130 cases three had bleeding from stomach, in one the case from Galveston resembling black vomit. *Nausea* and *vomiting* present in nearly every case, distressing in many. Mild dysenteric symptoms noted in about 7 per cent. Abdominal pains in region of appendix noted frequently.

Ratio of pulse to temperature.	Jaundice.	Mortality.	Progressive severity.	Remarks.
Pulse rate comparatively slow and regular, many cases not above 84 or 100 with temperature 103.	Began to be observed in a large proportion of the cases after Oct. 1. In most cases confined to conjunctivæ, in others upon face and coming on early in the fever.	Does not believe there was a case of yellow fever in Galveston. The Wade case was the most suspicious. Diagnosis, *acute infectious jaundice*. Death certificate signed uremia.	Distinctly noted; mild in the beginning, latter part of July and August. More severe in September and still more virulent in October.	Conclusion. The Wade case was not yellow fever because of survival beyond usual duration, intense nausea and protracted retching instead of easy vomiting; calm indifference to surroundings, lack of postmortem, evidence of fatty degen. of kidneys or liver and of hemorrhages.
Want of correlation between pulse and temp. occurred so frequently as to be almost the rule, *e. g.*, temp. 102.3, pulse 66; temp. 103, pulse 80. This condition noted in some from beginning and in others after second paroxysm.	Jaundice of mild grade was the rule from first to last, not of the skin, for this was noticeable slightly in a very few, but a slight yellowness of the conjunctivæ.	Practically no mortality; one death in which dengue occurred as a complication of a previously existing interstitial nephritis. Does not believe there was any yellow fever in Galveston during the past season.	Not specially noted.	Temp. usually high in beginning, came (after slight remission) high again toward end of attack. Duration on average, 4 days; in mild cases 3, in 50% 5. Conjunctivæ usually mildly injected. Also hyperemia of face and neck. Neuralgic symptoms marked in 90% of cases in head, back and limbs.
Not noted.	Marked and noted in 30 per cent.	No deaths. Suspected yellow fever at first owing to jaundice, nausea and vomiting and temperature.	No difference in severity as epidemic progressed.	
Abnormally slow.	Not noted.	No mortality. Yellow fever not suspected.	Increased.	
Generally abnormally slow in proportion to height of temperature, *e. g.*, pulse 45, temperature 100; pulse 80, temperature, 105.5.	More or less present.	No mortality. Recognized analogous symptoms, but did not suspect yellow fever.	Very little difference in severity as the epidemic progressed.	Continued during January, 1898. Noticed several sequelæ, one of them falling of the hair during second and third months after recovery.
Normal.	None noted.	None.	But little difference.	
Pulse about 120, with temperature 103–105	None noted.	No deaths. Not suspected.	No increase in severity as epidemic progressed.	Small number of cases ascribed to extraordinary sanitary precautions and strict quarantine.
About normal.	Mild in 10 per cent., severe in 2.5 per cent.	One death from uremic complications; case seen in consultation; no autopsy. No.	No difference.	
In 50 per cent. cases abnormally slow pulse in proportion to temperature.	Jaundice in 75 per cent. more or less marked.	No deaths. Suspected from symptoms, but lack of mortality precluded such an opinion.	No marked difference as epidemic progressed.	More severe with old people; children suffered comparatively little.
Not noted.	Found in a few cases.	No mortality in the absence of complications. The case of suspected death from yellow fever turned out otherwise. No.	Decrease in severity as epidemic progressed.	
Not noted.	Noted in a few cases where nausea was marked and hard to control.	Two deaths, one with uremic symptoms and one from bowel complications. Is not sure they died from dengue; occurred in the practice of Dr. Evans. No.	Not noted.	
Abnormal slowness of pulse in proportion to temperature noted in several cases with temperature over 100, pulse would range from 50–60 and 65.	Observed in 4 per cent., to a slighter degree in about 7 per cent.	Lost but one case, which was complicated by acute rheumatism and mal-assimilation. Only one other death from dengue, but a number of old persons have died during following winter from failure to recuperate. Symptoms of some cases so nearly approached those of yellow fever, unable to discriminate.	Epidemic increased in severity for about six weeks or until it subsided for want of material.	Dr. Walker is familiar with both yellow fever and dengue.
Pulse slow in proportion to height of temperature. In one case pulse 72, temperature 102⅘. In another, pulse 90–96, temperature 103–104.	Jaundice noted in about 7 per cent. Gastro-duodenal catarrh to some extent in most cases.	No mortality. No.	Worst cases in beginning and middle of the epidemic.	

Observer and Location.	Date of outbreak; proportion of population affected; duration, origin.	Meteorologic and hygienic influences.	Symptomatology.	Remarks.
Dr. Robert T. Morris, Houston, Harris Co., fifty miles from coast, railroad center; population about 50,000.	About September 1; mild at first, rapidly spreading in three weeks, affecting a large proportion of the population.	Not noted.	Paroxysm—Single. Temperature—Rises regularly. Duration—Three to five days. Tongue—White center, red pointed. Conjunctivæ—Injected. Stomach—Irritable and nausea. Vomit—Frequent. Neuralgic signs—pain in head, back and stomach. Eruption—Erythema noticeable. Jaundice—Frequent, especially in conjunctivæ. Secretions—Deficient. Urine—Diminished, albuminous. Hemorrhage—Frequent and alarming, black vomit. Mortality—About thirty deaths. Pulse—Divergent pulse and temperature frequent.	In the January, 1898 number of the S. W. Med. Record Dr. Morris discusses the nature of the epidemic in Houston; from this article the following is a condensed statement. He shows: 1, how infection may have occurred by refugees from Ocean Springs before quarantine was declared; 2, that the cardinal symptoms of yellow fever were present in many cases, viz., the characteristic fever, divergent pulse and temperature, jaundice, scanty suppressed and albuminous urine, black vomit in three cases; a connecting link was noted between anomalous cases in several instances. An increase in the mortality rate of 20 over that of the preceding year was noted; 11 deaths ascribed to senility, 5 from dengue, 11 from enteritis and gastritis, 10 from fever, 1 from meningitis and 5 from kidney diseases.

been generally recognized when we take into consideration that it came in the guise of dengue, was introduced late in the season, into localities where the conditions were unfavorable for its spread, and that according to all testimony, it was the mildest epidemic of yellow fever ever known in the history of the country.

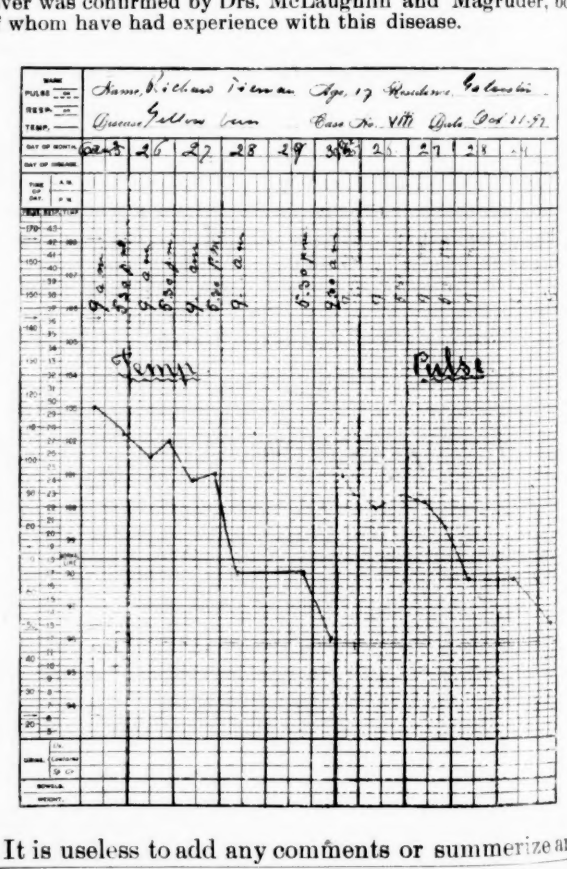
Admitting that there is greater similarity in the symptomatology of the two diseases than has heretofore been acknowledged, the question arises, how can they be differentiated? In my opinion chiefly by the symptom complex of an acute nephritis in yellow fever and its absence in dengue. In the latter, simple parenchymatous changes may occur in the kidneys and be manifested by an evanescent and mild albuminuria. While in the former in a series of cases many will afford incontestible evidence of the occurrence of a severe nephritis, viz., scanty urine, of high color and specific gravity, intense and persistent albuminuria, hematuria, casts, decided tendency to suppression and the accompanying uremia.

The following are brief clinical histories of the three cases, reported by Dr. R. T. Morris occurring in Houston[2] and one from Galveston reported by the writer.

Case 1.—Oct. 23, N. J., aged 28, was called late in the evening; found patient suffering with anorexia, pain all over body, but especially marked below knees; constipated but urinating freely; temperature 103; severe frontal headache; no albumin in urine. Prescribed castor oil, and being called out of the city, did not see patient till three days later, when he was found to be very low; pulse hardly perceptible, not over fifty-four to the minute; retching but no vomiting; urine heavily loaded with albumin; total amount voided in twenty-four hours three pints; patient muttering to himself, but on speaking loud to him could be aroused, and would give intelligent answer, although a few minutes after conversation ceased he would drop back to unconsciousness; at 6 P.M. vomiting of a coffee-ground-like substance set in, not more than a tablespoonful every hour till next morning, when, of a sudden, without any effort whatever, a gush of same kind of vomit was ejected, amounting to at least a pint and a half. Inside of fifteen minutes after this vomit patient expired, and after ten minutes his corpse was of a decidedly yellow tinge, and dependent portions discolored like after severe bruising.

Case 2.—September 19, called to see I. R. F., male, aged 22, found what I believed to be incipient dengue; reported improved by the 21st; on the 22d recalled in haste; on arrival found patient comatosed, pulse 56, temperature 103.5 degrees; on arousing he told me, and the statement was confirmed by his mother, that all urine he had passed since the day before (in all 28 hours) was in a vessel under the bed. By ocular inspection was found to be very dark and muddy, smell strongly ammoniacal, examined at office, albumin in great quantity, nearly solidifying in test tube. Returned at once to patient; found him again in comatose condition and having voided a small quantity of urine which had strongly colored the linen. Prescribed tincture digitalis, ergot, spirits juniper and liquor ammoniæ acetatis. Recovery uneventful but exceedingly slow; yellow tinge in eye appeared as late as 26th, disappearing after forty-eight hours.

Case 3.—R. T. Jr., native of Galveston, aged 16, of robust constitution and previous perfect health, was taken sick suddenly October 24 in the afternoon, with a slight chill followed by high fever, with intense headache, pains in the back, limbs and joints. At my first visit on the 25th, as soon as the room was entered a peculiar nauseating odor was perceived, the eyes were watery and red with a yellowish tinge, the skin was decidedly yellow, the gums were softened and disposed slightly to bleed, anorexia was marked, tongue coated and red at its tip and edges, excessive nausea and disposition to vomit everything swallowed, bowels had moved from a purgative. The patient was nervous and indisposed to sleep. The course of the fever is typical and is exhibited in the accompanying chart. It should be noted that when a normal temperature was reached on the 28th, the fifth day of the fever, that the pulse dropped to 64, and that on the 30th when the temperature was subnormal the pulse was 50. The stomach continued to be irritable, there was epigastric tenderness. On the night of the 29th blood was vomited in small quantity; the urine was scanty, of high color and specific gravity. A heavy precipitate of albumin was found on the 29th, also granular casts. Daily examinations showed albuminuria during the following eight days, after which it gradually subsided as the urine became paler and more abundant. The albuminuria was more intense during the stage of depression. After a tedious convalescence recovery ensued. My diagnosis of a severe attack of yellow fever was confirmed by Drs. McLaughlin and Magruder, both of whom have had experience with this disease.



It is useless to add any comments or summerize any

[2] S. W. Med. Record, January, 1898, p. 415.

other cases with similar histories. What other diagnosis could have been made than that of yellow fever. *Anomalous dengue* was one of the names suggested during the recent epidemic; if this is dengue, then the identity of that disease and yellow fever is established. When pressed for a diagnosis in certain of these cases, some of the Galveston experts denominated them Weil's disease, or acute infectious jaundice, which is manifestly such a far fetched conclusion that words would be wasted in its refutation.

One of the arguments which has been repeatedly used against the existence of yellow fever in Texas during the past season, was the want of mortality. Upon this point let me quote Dr. Morris again:[3] "From Oct. 1, 1897 to Nov. 18, the death rate in Houston was 33⅓ per cent. greater than in the corresponding period of 1896." The causes given in death certificates are as follows: senility 11 (four of whom were not over 60); dengue 5; enteritis and gastritis 11; fever 10; meningitis 1; kidney disease 5. The record of Galveston does not show any increase of deaths during the months of August, September and October over the previous three years. There were five deaths however preceded by symptoms of yellow fever; it is a signicant circumstance that in four of these uremia was given in the certificate as causes of death. In the other, congestion of the lungs was mentioned as the primary, and bilious fever as the remote cause.

Those who deny the existence of yellow fever in Texas during the past season rely chiefly upon the apparent indisposition of the disease to spread from numerous foci. In other words, they contend that the presence of the infection necessarily involves its dissemination. No extended argument is requisite to demonstrate the fallacy of such conclusions. The pathogenic micro-organism of yellow fever is a facultative parasite, but its ordinary mode of life is saprophytic. It grows and develops outside of the body when the conditions are favorable for its reproduction. The seed may fall by the wayside, or upon a rock, or among thorns and wither away, or upon good ground and spring up and bear a hundred fold. The fact that the soil of Texas was an unfavorable one for the multiplication of the yellow fever germ last season is an adequate explanation of the history of the recent epidemic. It is not contended that the hygienic condition in these cities was perfect, but that the combination of circumstances was antagonistic to the extensive dispersion of the infection. Instead of being a blot upon the sanitary escutcheon of Houston and Galveston, it is another demonstration of the fact which has previously been observed, that yellow fever may be brought to these places without necessarily involving an extensive epidemic or serious mortality. Two important lessons should be emphasized; 1, the urgency of promptly recognizing the early cases and calling them by their proper name, for by this means only may subsequent disaster in many instances be averted; 2, we should put our houses in order, in other words adopt every possible method of domiciliary and municipal cleanliness. Napoleon is said to have remarked that "Providence was on the side with the strongest artillery." When yellow fever is around Providence is on the side of the town with the best system of sewers. Again, it has been demonstrated that yellow fever may masquerade in the garb of dengue and that the latter is a portable disease; leaving out of the case the probable association with yellow fever, it became a serious question whether dengue should not be considered a quarantinable disease. The suffering and expense incident to an extensive epidemic like the one of last season would certainly appear to justify measures of prevention.

[3] S. W. Med. Record, January, pp. 413-414.

DISCUSSION.

Dr. KINYOUN of the U. S. Marine-Hosital Service—I have had some experience with yellow fever and dengue. Dr. West's paper is a very able one and he has gone into the points in differential diagnosis very thoroughly. I recall the history of the epidemic of dengue which occurred last year, April 12. The crucial test was made. In certain cities, not purposely but as a matter of convenience, persons were employed as disinfectors who had had dengue previously; none of these had the fever. Catarrhal jaundice, dengue and mild yellow fever are unfortunately closely allied. And when we take this fact into consideration in the epidemic of last year it will be known that many cases of dengue were reported which were not dengue at all but mild cases of yellow fever.

Dr. BREWER of Texas—Jaundice occurs in about 50 per cent. of the cases. There were 600 cases and there were no deaths attributable to dengue fever. There was great excitement in the whole country but when it was found that there were no deaths following this epidemic, the excitement abated.

H. A. WEST of Galveston, Texas—I regret, Mr. Chairman, that this subject has not been discussed more fully, as the situation in Texas, imperfectly sketched in the paper, was of the most interesting a medical man is ever called upon to encounter. I would like very much to have heard the opinion of those whose experience has been wider than mine, especially as the narrated facts appear to controvert the generally accepted views as to the differential diagnosis of the fevers under consideration. The diagnosis of yellow fever in Galveston and Houston made by Dr. Guiteras was fought to a finish by the public prints, the people at large and by the majority of the physicians. It was iterated and reiterated that "yellow fever kills," "there is no such thing as mild yellow fever" and woe betide the man who had the temerity to raise his voice against the verity of this assumption. The actual mortality was hidden by certificates giving as the causes of death "senility, dengue, uremia, bilious fever, etc." The argument was sophistically presented by some as in the title of a paper upon the subject, "Dengue *or* Yellow Fever," that is to say it must be one thing or the other and leaving out of view entirely the probability of the concurrent prevalence of the two diseases. I have presented the facts, which are conclusive to my mind, that such was the case, also that yellow fever is not always and necessarily attended by a terrible mortality (this is one of the most instructive lessons of the recent epidemic, not only as to Texas, but in the regions east of the Mississippi); that it may not rapidly spread from numerous foci; that the symptomatology of yellow fever and dengue approaches more intimately than has hitherto been taught; and that in the light of the facts I have presented, the differential diagnosis of these fevers will have to be rewritten.

RARE CASES OF ARHYTHMIA.

Presented in the Section on Practice of Medicine at the Forty-ninth Annual Meeting of the American Medical Association, held at Denver, Colo., June 7-10, 1898.

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PHILADELPHIA, PA.

Arhythmia is a symptom that is common to many diseases and conditions, but the scope of the present article is limited principally to the clinical features of certain forms of the disorder not hitherto described, that have fallen under my observation. The examples that I shall adduce are too few to establish tenable hypotheses, either in their etiologic or clinico-pathologic bearings, yet they present points of rare clinical interest.

The first case occurred in the person of a physician, aged 40 years, who had been an abuser of tobacco for a protracted period, having habitually smoked from eight to twelve cigars daily. The family history gave undubitable evidence of a gouty tendency, and the

patient himself had suffered from acute articular rheumatism on two different occasions. A careful physical examination permitted the positive exclusion of organic valvular diseases, and the probable elimination of other structural affections of the heart. Nor were any of the usual causative morbid conditions that usually precede or are found associated with arhythmia present, except the tobacco-habit.

The functional disturbance of the heart first assumed the form of true palpitation—*i.e.*, the patient perceived the rapid cardiac pulsations, at the same time experiencing considerable mental anxiety and slight anginose pains. A little later a curious, and so far as I know, peculiar form of arhythmia manifested itself. For example, on auscultation four sounds could be distinguished during cardiac rhythm, and it seemed clear that both the first and second sounds of the heart were reduplicated. The fact that the first sound was doubled was confirmed by the pulse, which was felt during the auscultation of the heart; the pulse-wave appeared to strike the palpating finger at the wrist synchronously with the second (feebler) element of the systole, while the impulse at the apex coincided with the first (stronger) element of the first sound. The pulse showed the modified double beat (*pulsus bisferiens*) when moderate pressure was made upon the radial. The *pulsus bisferiens* has been most frequently met with in combined aortic incompetency and aortic stenosis. The case here recorded is the only one (apart from a double aortic lesion) in my experience in which this form of pulse was typically shown. It is doubtless dependent upon double ventricular contraction. Elevation of both arms, so as to increase the force of the blood stream in the direction of the left ventricle, increased somewhat the irregularity, and accentuated the distinctive arhythmic features above described.

Broadbent[1] points out, also that "The *pulsus bisferiens* can not uncommonly be induced by an effort, which throws additional work upon the heart; for instance, in one case it was not present while the patient lay quietly in bed, but was brought out when he held up both his hands."

Cardiac action, in my case, was accelerated, the radial pulse ranging from 100 to 108 per minute. In a general way, the heart sounds resembled those of the well known canter rhythm, in which there is an interpolated sound, due in a majority of cases to the splitting up of the second sound, but in the instance under consideration, a second interpolated sound was heard, following immediately upon the impulse, and it was ascribed, as before stated, to a double systole. To clearly show that the double second sound was a genuine reduplication in this case, I would direct especial attention to the following points: first, it was most distinctly heard at the base; secondly, the two elements of the duplicated sound were separated by an exceedingly brief interval, and finally, that both strongly resembled the normal second sound.

True reduplication of the second sound, which depends upon "a disturbance of the relation which normally exists between the pulmonary and aortic pressures," results from a great variety of causes. It is a well-established fact that in conditions in which the pulmonary tension is unduly high (mitral stenosis, etc.,) doubling of the second sound is common. Arthur G. Phear[2] states that it may be met with in cases of anemia and debility, conditions that were not present in my cases. Phear has made an analysis of twenty-five cases of which detailed notes were available, with the following results: "*a*, mitral murmurs were present in ten cases, in five of which the murmur was presystolic only, in four systolic only, and in one double; *b*, in twelve cases, exclusive of the ten with mitral murmurs, anemia or debility was present, the individuals in many instances being convalescent from some acute febrile disease; *c*, two cases of acute lobar pneumonia, and *d*, in one case there was hypertrophy of the heart, with high tension pulse, and 'bruit de galop' audible at the apex."[3]

I have carefully excluded so-called simulated reduplication, which is audible at the apex only, while at the base a single second sound is heard. Simulated reduplication, a rare condition, can not for lack of time and space be further considered here. A sphygmogram could not be conveniently obtained.

The patient was strongly advised to discontinue the smoking habit, and at his next visit, one month later, the peculiar form of arhythmia, to which the term "double reduplication" of the cardiac sounds might be appropriately applied, had practically disappeared. Since then mild attacks of palpitation at long intervals, particularly as is usual on assuming recumbent posture at night and an occasional intermittences have been experienced.

A second instance of so-called "double reduplication" was observed in a female, under my charge in the Medico-Chirurgical Hospital, aged 43, single, suffering from exophthalmic goiter in the advanced stage. The latter affection followed prolonged physical and mental strain. All of the characteristic symptoms had apparently developed in their usual sequence, *i.e.*, tachycardia, muscular tremor, exophthalmos, and lastly, thyroidean enlargement. The cardiac impulse at the time of my first examination was greatly exaggerated; percussion dulness increased slightly, both to the right and the left, and auscultation rendered audible a blowing murmur over the base of the heart, while the valvular sounds were accentuated.

There was probably slight cardiac dilatation (secondary to functional hypertrophy) present, a common incident in this disease. The case immediately prior to admission (February 28) had, as stated before, reached an advanced period, with constant and markedly irregular action of the heart (*delirium cordis*). Twenty-four hours before death a gallop rhythm was clearly distinguishable on auscultation, while twelve hours previous to death, or at my last examination of the case, both the first and second sounds were apparently reduplicated. In this instance, also, the pulse was felt at the same time that auscultation was practiced. The pulsus bisferiens was not present. The redulplication in this instance, as is usual, was most clearly heard when the stethoscope was placed partly over the left and partly over the right ventricle near to the apex-beat. It was obviously caused by asynchronous contraction of the two ventricles.

A third case of arhythmia, while manifesting distinctly peculiar and rare features, was associated, as commonly occurs, with marked obesity. M. W., aged 38 years, widow, childless, weight 280 pounds, complexion ruddy, consulted me August 10, 1896, on account of inordinate dyspnea on slight exertion, and gastric disturbance. The family history was negative, except-

[1] Heart Diseases; With Special Reference to Prognosis and Treatment, p. 143.

[2] Lancet, January 9, 1897.

[3] Loc. cit.

ing the presence of positive evidence of a slight gouty taint. The patient had begun to take on flesh in a slow and gradual manner twenty years previously, though actual lipomatosis had not existed for more than ten years.

Condition at the time of examination.—The pulse was found to be wholly irregular, both in volume and rhythm, and increased in frequency to an average rate of 96 while the patient was at rest. On auscultating the heart while the pulse was felt at the wrist, it was noted that systole occasionally failed to send a pulse-wave to the radial that the palpating finger could detect. Upon careful and repeated physical examination, which although far from satisfactory in its practical results on account of the enormous deposits of fat, valvular affections of the heart were not demonstrable. On the other hand, apart from the arhythmia noted before, nothing but the evidences of marked obesity and a feeble, muffled cardiac first sound were present.

As stated above, the condition at the time I first examined the case took the form of "combined arhythmia," *i. e.*, irregularity in both volume and rhythm. Shortly after, a typical "pulsus alternans" was occasionally noted. Recently, while the patient was suffering from an attack of influenza, I observed the "pulsus alternans" along with a modification of the rhythm that suggested an analogy to the Cheyne-Stokes type of breathing. For example, after a comparatively short pause, or an intermittence, both the pulse and heart beat would begin at a slow rate and gradually increase in frequency for from eight to ten beats, at which moment the heart action would be quite rapid, to be followed by a second, abrupt pause, and so on.

There was present at the time the signs of a dry form of bronchitis (cough and sibilant râles on auscultation), with slow, asthmatic breathing superadded. The periods of exacerbation or increasing acceleration of the cardiac contractions coincided, in the main, with the latter part of the inspiratory element of the respirations, while the pause following was synchronous with expiration. The remarkable influence of the respiratory function upon the cardiac action was further shown by the fact that during the held breath the heart rhythm at times became almost regular, at others it merely manifested decided improvement. I had previously witnessed occasional intermittence and the "pulsus alternans" in *morbus adiposis*, but not the peculiar form of pulse or cyclical increase in the rate noted in this instance. Kisch[4] contends that the "twin pulse" and obesity are conditions frequently found in association.

In the not infrequent irregularity of the cardiac action met with in the obese, an affection of which this case is a well marked example, I am inclined to believe that the condition is in great part dependent upon mechanical interference with the movements of the heart. That this embarrassment, however, is not wholly attributable to the depositions of fat, but partly to the respirations acting upon a heart already enfeebled by the toxins of influenza, is shown by the effect of a suspension of the latter function in the case reported above. Nothnagel[5] has emphasized the fact that in meningitis the pulse may vary from minute to minute, the slow pulse, as in my own case, may suddenly increase greatly in rapidity, and again become retarded. Baumgarten[6] holds that these sudden oscillations are dependent solely upon central irritation. In the case reported here, however, the rise and fall of the pulse occurred almost synchronously with the respiratory acts, the variations or cycles occurred, therefore, from ten to twelve times in a minute. Again, it is a not infrequent matter of observation to find the presence of murmurs and various forms of arhythmia whose existence is totally dependent upon the influence of the respirations. In this connection, I may state that I have observed cases in which apical systolic murmurs were audible only during the latter part of inspiration and the beginning of expiration. In one of these the murmur could be maintained for a considerable period during held inspiration. In another case, an occasional intermittence was also noted on inspiration. Neither of these two cases presented any evidences of organic or structural changes of either the heart or lungs; they both occurred, however, in neurasthenic subjects. The significance of the forms of arhythmia that I have described can not be positively stated, but they are probably grave in cases in which the cause or causes are not readily removable, as for example in the case of exophthalmic goiter reported above that proved speedily fatal.

In conclusion, I desire to restate in sequence some of the most interesting points embodied in this paper.

1. The presence of reduplication of both first and second sounds (double reduplication) in the first two cases, one of tobacco poisoning, the other exophthalmic goiter.

2. The occurrence of a typical *pulsus bisferiens* in case one, dependent upon the toxic effect of tobacco, in the absence of combined aortic regurgitation and stenosis.

3. The presence of a cyclical increase in the rapidity of the movements of the heart, followed regularly by a brief pause; and the striking effect mechanically of the respiratory function upon this peculiar variety of arhythmia.

4. The temporary production of apical systolic murmurs during the inspiratory element of the respiration.

5. That all of the cases developed in subjects in whom previously existing valvular lesions of the heart, so far as determined, were absent.

[4] Berliner Klinische Wochenschrift, Berlin, March 18, 1895.

[5] Deutsche Archiv für Klinische Medicin in 1876, quoted by T. A. Claytor, University Medical Magazine, January, 1898.

[6] Transactions of the Association of American Physicians, Vol. iii, 1888.

THE PRESENT STATUS OF VACCINE AND VACCINATION.

Presented to the Section on Practice of Medicine at the Forty-ninth Annual Meeting of the American Medical Association, held at Denver, Colo., June 7–10, 1897.

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It will not be attempted in this article to go into a historical résumé of vaccination, but it may be profitable to discuss briefly the relation existing between smallpox and vaccinia. Since the beginning of this century, numerous experiments have been made to determine whether they are distinct diseases with interchangeable immunity, or whether vaccinia is an attenuated smallpox obtained by its passage through an animal of greater resistance. Gassner in 1801, Sunderland in 1828, Thiele in 1836, Ceely about the

same time, Babcock in 1840; and later experimenters such as Voight, Fischer, Haccius, Eternod, Copeman and Klein have all been able in one or more cases to produce vaccine by passing variolous material through cattle. Probably King of Madras, 1891 or 1892, has reported the most striking results, in which more than 400,000 persons were vaccinated with lymph thus produced, without reverting in any particular to its origin—smallpox. Frequently the first remove will not sufficiently attenuate the lymph, so that its inoculation in the human may produce symptoms similar to variola, as is instanced in Martin's cases, 1836; Reiter's, 1839; and Chauveau's in 1864. This may be corrected, however, by making a number of removes through animals before attempting to vaccinate the human subject. These observers, therefore, believe that the two diseases have a common origin. The most prominent modern objectors to this theory are Chauveau and Cruikshank. Chauveau, as President of the Lyons Conference, reported in 1864, that the two diseases were entirely distinct, though vaccination produced immunity from smallpox, and vice versa, by direct antagonism; in 1891 he reaffirmed his previous position, stating that "Vaccine virus never gives variola to man, nor does the virus of variola ever produce vaccinia in the ox or horse. The two viruses can not, therefore, be reduced to a single virus." Cruikshank, who with the pertinacity of an Englishman for preconceived notions, after referring to the numerous results obtained by other investigators, calmly says that they are mistaken; and that virus obtained from the variolation of cattle was not vaccine at all, but modified variola, though he is careful to give no test by which we can distinguish between the two diseases.

Copeman in 1896, after a careful review of the evidence on both sides, sums up as follows in speaking of inoculating calves with smallpox virus: "The final results, however, after greater or less number of removes from calf to calf, has been invariably the same, namely, the production of a local vesicle, indistinguishable by any means at our command such as the appearance and course thereof, or the protective power of the lymph derived therefrom, from true vaccinia."

VACCINATION FROM THE STANDPOINT OF BACTERIOLOGY.

Having determined that vaccinia is only an attenuated smallpox, it follows that the active principle must be the same in both. Numerous investigations by eminent authorities have failed to this time to prove anything definite, as to its identity. Chauveau in 1865 reported the following results of his investigations: he found vaccine lymph to be composed of a fluid part in which there were white corpuscles, and a number of granules many times smaller than the leucocytes. These constituents were separated by diffusion, and it was shown that in inoculation it was the granule alone that communicated vaccinia. But little advance has been made from this position today. Copeman in 1891 reported a series of experiments which appeared to prove that the active principle was in the solid constituents of the lymph. After filtration the liquid had no potency while the remaining solid matter produced normal vaccine vesicles. This I verified in 1895 with material filtered by Dr. Kinyoun, the animals vaccinated with the fluid after filtration showing absolutely negative results. This would seem to show the particulate nature of the virus.

Martin in 1891 (reported by Ernst in 1893) obtained a bacillus from the lymph of a vaccine vesicle, which he believed to be the infectious agent. He claimed that the ninth generation on blood serum produced a typical vesicle in the calf. He says, however, "These cultures were not pure, but contained quite a variety of bacteria; in every instance blood serum was liquified." He states that what he considers the specific agent varies in form, according to the various conditions of its nutritive environments, and consequent rate of its development. The most constant form is a short, fine bacillus, with rounded or nearly square ends. According to his own testimony, he had not isolated a specific organism.

In 1891 or 1892, Copeman, with Kent and Klein, though working independently, claimed to have found a bacillus described as follows: 1 μ in length and one-half as thick, heavily stained at ends, almost unstained in the middle, possibly spores. Found also in tissues in groups of from two or three to ten. This organism cultivated by special methods was inoculated into a calf, which on the fourth day produced a vesicle indistinguishable from that produced by vaccine. In 1896, Copeman reports still further results with this organism, describing a more or less imperfect method of cultivation. Pure culture obtained after one month's growth produced typical vesicles in a calf, which protected it from subsequent vaccination or variolation. Children were also vaccinated successfully with material taken from a calf vaccinated with this culture. I have not been able to find any further report from Copeman, but it is said that after further investigation he has abandoned this bacillus as the cause of vaccinia or smallpox.

Since Laveran's discovery as to the malarial organism, investigators have been tempted to make special examination of the blood, thinking that probably the parasite might be of an animal nature. Guarnieri and Pfeiffer have called attention to organisms in the lymph which they believed to be of the nature of a parasitic protozoon and the probable active vaccinia principle. These results seemed to warrant further investigations; and Dr. Walter Reed, U. S. A., in 1897, in an exhaustive research covering a period of five months, made a report in which he confirmed the results of Pfeiffer, in that small ameboid granular bodies in the blood of children and monkeys who had never been vaccinated, though not in such large numbers. Dr. Kinyoun's researches at the laboratory of the U. S. Marine-Hospital Service about the same time would seem to warrant similar conclusions. He found them also in animals not vaccinated. These researches would suggest that these bodies are in the normal blood and are probably increased in large numbers as the result of inflammation, and it is certainly not proven that they are the active principle of vaccinia.

As to what are termed by Copeman "extraneous bacteria," the literature on this branch of the subject is so profuse that it will only be possible to make a summary. Probably the most complete research along this line has been made by Cruikshank extending over some years. He has found in the various stocks of lymph, staphylococcus pyogenes aureus, staphylococcus pyogenes albus together with a large number of saprophytic bacteria. The streptococcus has been reported by Copeman and Whitlow. Dr. Reed examined the points from six vaccine farms and found staphylococcus albus and aureus in all the

plates. I, myself, in examining lymph at various times from several sources have almost invariably found the staphylococcus albus and aureus and frequently the streptococc s; and in one instance, finding that the vaccinations on heifers seemed to produce excessive discharge and tissue necrosis at the point of inoculation, I took cultures and found the predominant bacterium to be the streptococcus. This is simply one illustration of the importance of bacteriology to the production of vaccine lymph. Weaver, instructor of bacteriology of Rush Medical College, obtained points from four producers as sold in Chicago and in the cultures from all found pathogenic organisms. Fütterer examined seventy-five ivory points from different sources and found staphylococcus aureus in fifty-five, staphylococcus albus in about the same number and the streptococcus of erysipelas and phlegmon in ten. I have also found in numerous cultures from vaccine a short motile bacillus with rounded ends, resembling the pseudo-diphtheria in grouping, growing on ordinary media, but in bouillon producing a pellicle which falls to the bottom in flakes. This bacillus is poly-morphous, taking different forms so frequently in its cultivation as to make it difficult to prevent contamination; as most frequently found the staining is bi-polar. This organism has been noted by Dr. Carrol. I am inclined to think that it is the bacillus reported by Martin, the contamination reported by Ernst being probably the changing forms of this organism. It is pathogenic to white mice. The press of other work has precluded a further investigation, but I expect to continue it in the near future.

The finding of extraneous organisms in the lymph is so general and in such large numbers as to suggest the possibility of numerous accidents accompanying or produced by vaccination; and in fact, we all know that intensely sore arms are so frequently the result of vaccination that the laity and, in fact, some physicians suppose that there is no protection without this local necrosis and its attendant symptoms. We now know that the most of this inflammation is due to *extraneous pathogenic organisms* and is not the legitimate result of vaccination. In addition to this unnecessary local condition, numerous instances of systemic poisoning are reported which evidently are not necessary to vaccinia. Thus Fox reports cases of more or less pronounced dermatitis, also mentions the "lamentable occurrence of septecemia and pyemia," as well as the rarer complication of tetanus. Further on he says: "Erysipelas is from its frequency and gravity the most important disease in this group." And again remarks that "more or less profound ulceration and even gangrene is not a very rare sequel to vaccination." Probably the most common affection of this group is contagious impetigo. This is a benign affair, but none the less a source of grave anxiety and consternation to parents.

During the Civil War vaccination with septic lymph or crusts resulted in hospital gangrene, tetanus, pyemia, septicemia, etc.

That syphilis may be produced no one will deny when humanized lymph is used. Dr. Arning detected the bacillus lepræ in the lymph and crust of a vaccinated tubercular leper. Dr. Fox reports three cases of lupus in vaccination scars. Professor Toussant vaccinated a tuberculous calf with lymph from a healthy infant. The lymph from the pustule in the calf was inoculated into four rabbits, a pig, a cat and a pigeon; two rabbits killed two months later displayed local glandular and pulmonary tuberculosis, a third killed on the 218th day and the fourth on the 246th day were tuberculous. I am aware of conflicting reports; yet when such results have been obtained by competent observers we can not close our eyes to the danger of tuberculosis resulting from tuberculous lymph.

We might continue indefinitely multiplying examples of accidents reported from the use of infected lymph, but this is unnecessary, as any thinking man must see that bacteria of all kinds are liable to grow in an open wound, and that the bacteria produced in the lymph must be carried in the lymph and be inoculated with it in the human subject. Experimenters recognizing the strong position taken by the anti-vaccinationists in reference to these facts, have been trying for years to produce a lymph devoid of bacteria, or failing in this, to effect the destruction of the pathogenic bacteria before using it for vaccination purposes. The former condition being impossible, efforts have mainly been directed to the destruction of these organisms without injury to the lymph.

Carsten and Coert, in 1875, found that sufficient heat to kill the bacteria also destroyed the lymph. Attempts at filtration were then tried, resulting as I previously mentioned, in the destruction of the lymph. Copeman, in 1891, published the results of some investigations looking to the use of glycerin as a germicide, since Mueller, Straus and Chambon and Ménard had been using it for some time as a lymph preservative. He made a still further report in 1893. Here he states: "Lymph which originally gave only mediocre results, after fifteen days in glycerin produced a passible pustule; after forty, fifty or sixty days a typic one. The improvement seemed due to the gradual extinction of parasitic microbes under the influence of glycerin and time." After reading this report in 1894, I began the preparation of the glycerinated lymph, and, while my results were not so flattering as those of Copeman with glycerin as a preservative, there can be no doubt that it brings about gradually the destruction of the germs. The hay bacillus and the unidentified bacillus formerly mentioned by me being the only ones to survive any considerable time; and I am moreover of the opinion that the germs originally pathogenic are attenuated by the action of the glycerin, even though they may grow when planted on artificial media. This point, however, requires further investigation.

In October, 1894, Dr. Ralph Walsh of the National Vaccine Establishment, Washington, D. C., read a paper before the American Public Health Association, Montreal, in which after discussing Copeman's results, he says: "The admixture of glycerin with vaccine lymph will destroy all extraneous bacteria without injury to its peculiar active principle," and further, "the admixture of glycerin with vaccine lymph not only destroys extraneous bacteria but prolongs the activity of the lymph." In May, 1896, Dr. Sternberg, Surgeon-General United States Army, read a paper at Atlanta, Ga., in which the following conclusions were arrived at:

"Various bacteria are commonly found in the lymph from vaccine vesicles obtained either from bovine animals or from man. Among these are the well-known pus cocci and these micrococci are probably largely responsible for the erysipelatous inflammation and other unpleasant complications which frequently result from vaccination with such lymph."

Again, "lymph preserved in glycerin after a time becomes sterile so far as the presence of bacteria are concerned without losing its specific virulence."

In October, 1896, Dr. George H. Weaver of Rush Medical College read an article describing the bacteriologic contamination of vaccine lymph and the preservative action of glycerin. His conclusions are as follow:

"1. Vaccine lymph always contains bacteria, often of pathogenic forms.

"2. Pure vaccine lymph, after keeping in a fluid state or dried on ivory points as now prepared, is unfit for use and often dangerous.

"3. Vaccine lymph diluted with pure glycerin and distilled water becomes sterile in about two weeks and should not be used sooner."

In 1897 a committee consisting of Richard Thorne Thorne and Copeman, appointed by the Local Government Board of London to visit the cities of Europe and examine methods of preparing, storing and using vaccine lymph, reported in an exhaustive paper of over thirty pages the methods in Paris, Dresden, Berlin, Geneva, Brussels and Cologne. I can only give several extracts as follows:

"In only one of the places visited, namely, Paris, did we find that vaccination was carried out under official sanction with crude calf lymph, and even there the process was limited to vaccination direct from calf to arm; all lymph *stored* for distribution being glycerinated calf lymph."

Again, "The use of glycerinated calf lymph has become general throughout the German Empire."

Again, "Lymph obtained from these various sources and used from seven to thirty days after collection gives an insertion success of from 92 to 100 per cent."

These gentlemen are emphatic in their endorsement of this form of vaccine and recommend its adoption by the English Government, since in England at the present time arm-to-arm vaccinations are still largely in vogue. They also suggest, "That the Board's Animal Vaccine Station should be reorganized, both as regards construction and administration. *Notably*, will it be requisite that it should include a properly equipped laboratory under the direct supervision of a bacteriologic expert."

Now, assuming that the foregoing conclusions are correct, and that they are correct can not be successfully contradicted, we are allowed no other alternative than to condemn the use of vaccine crusts, quills, points, etc., or any other form of virus which has not been subjected to the purifying effects of glycerin or some similar agent. And now, a few words as to the methods of vaccination: On the Continent, a number of insertions are recommended, a small amount of the fluid is dropped on the skin in from three to five places and a sharp pointed lancet thrust once through the epidermis at each point desired to be inoculated. This puncture should be in an oblique direction and should extend only through the skin. In Paris, the lancet is charged with the lymph before the insertion. The theory for the number of insertions seems to be, that the vaccination more nearly approaches the point of saturation from multiple vesicles than from a single vesicle. This method is also recommended in this country by Dr. Hardaway of St. Louis, who suggests not less than five insertions one-half inch apart. Dr. Hewett of Minnesota modifies this by using a clean needle and making five pricks just deep enough to start the blood and about one inch apart. "Then with the same needle charged with the virus, gently prick it into each wound carefully." His opinion is that at least four perfect vesicles are necessary to protection.

The general method in this country is to use the single scarification about the insertion of the deltoid and carefully rub in the virus. I am inclined to prefer the insertion method when using glycerinated lymph, since it is difficult to get the lymph to "dry," and many practitioners object to the time necessary for scarification to become "sealed up;" and there can be no doubt that careless manipulation is more liable to result in contamination in this than the insertion method.

It should be scarcely necessary for me to mention the necessity for cleanliness in the operation of vaccination, yet I am sure that many physicians are negligent in this respect, and it is more than probable that many of the bad results blamed on the lymph are due to faulty technic or slovenly methods of inoculation. It is probably this fact that suggested subcutaneous inoculation to Dr. Sternberg when he writes as follows:

"Immunity may be induced by the subcutaneous inoculation of vaccine virus without the development of a vaccine vesicle; and it is probable that the subcutaneous injection of lymph preserved in glycerin would give protection without any of the septic complications so common as a result of vaccination by the usual method."

The same fact was also noticed by Dr. Kinyoun in an article published in 1896, in which he says: "Subcutaneous inoculations are followed by slight inflammatory reaction, being less when the virus is well diluted. There is a slight engorgement of the vessels and occasionally a slight exudation at the point of inoculation, which disappears in a short time. There is no lesion accompanying subcutaneous inoculation." This question suggests room for future experimentation in the hope that it may eliminate so many distressing complications of vaccination which annoy the patient and are a source of anxiety to the physician.

THE MEDICAL LAW OF NEW JERSEY.

BY E. L. B. GODFREY, A.M., M.D.

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CAMDEN, N. J.

To comprehend the causes which led to the enactment of the present medical law of New Jersey, and the establishment of the State Board of Medical Examiners, it is necessary to review briefly the history of medical legislation in New Jersey and its effects upon the profession of the State.

The Medical Society of New Jersey was organized in 1766, on a voluntary basis, without incorporation or charter. In 1772, the Society secured from the Colonial Assembly the passage of

"An Act to Regulate the Practice of Physic and Surgery within the Colony of New Jersey," which provided . . . "that no person whatsoever shall practice as a Physician or Surgeon, within the Colony of New Jersey, before he shall have first been examined in Physic or Surgery, approved of, and admitted by any two of the Judges of the Supreme Court, for the time being, taking to their Assistance for such Examination such proper Person or Persons, as they in their Discretion shall think fit, for which service the said Judges of the Supreme Court as aforesaid, shall be Entitled to a Fee of twenty shillings, to be paid by the Person applying. . . .

The law also provided that a "Testimonial of Examination and Admission" to practice should be given to each success

ful candidate; . . . that the penalty for violating the law should be "five Pounds"; . . . that the act should not apply "to any Person bearing His Majesty's Commission and employed in his Service as a Physician or Surgeon," or . . . "to hinder any Person or Persons from bleeding or drawing teeth," or . . . "to skilful Physicians or Surgeons from neighboring Colonies," but . . . "that every Physician or Surgeon or Mountebank Doctor who shall come into, or travel through this Colony, and erect any Stage or Stages for the sale of Drugs or Medicines of any Kind, shall for every such Offense forfeit and pay the sum of Twenty pounds, Proclamation money. . . ."

In 1784, this law was re-enacted by the State of New Jersey; its examining provisions were retained, and it remained in force until 1816. In that year, the Medical Society of New Jersey was re-incorporated (the first incorporation having been made in 1790); the act of re-incorporation authorized the Society to appoint a Board of Censors from its membership, to examine and license all applicants to practice medicine and surgery in this State, and this authority was possessed exclusively by the Society until 1851. In that year, the system of censorship was bitterly complained of by medical colleges in New York and Philadelphia as inimical to public and professional interests; the cry of monopoly was raised; the law was attacked and subsequently amended to permit the graduates of the College of Physicians and Surgeons of New York, the University of the City of New York, the University of Pennsylvania, the Jefferson Medical College and the Medical Department of Pennsylvania College, to obtain licenses from the Medical Society of New Jersey, without examination, upon the presentation of their diplomas to the President of the Society. In 1854, the friends of indiscriminate license secured the passage of an Act admitting the graduates of any legally incorporated medical college to practice medicine and surgery in New Jersey, upon filing a copy of their diplomas with the clerk of the county in which they intended to practice. This law practically abrogated the examining and licensing power of the State Medical Society and, in 1866, the Society voluntarily surrendered to the State the empty privilege of censorship.

From 1772 to 1851, a period of seventy-nine years, the Medical Society of New Jersey stood as the authorized guardian of the portals of the medical profession of the State; from 1854 to 1880, a period of thirty-six years, the only legal requirement for license to practice was the registration of a medical diploma. During the latter period, physicians multiplied rapidly; the doctor was despoiled of much of his former dignity; bogus medical colleges flourished, and quacks abounded in every part of this State. The need of restrictive measures, governing the practice of medicine, became evident and, in 1880, an Act was passed by the Legislature making the filing of a fraudulent medical diploma a misdemeanor. This law, however, was not sufficient to shut out the possessors of such diplomas from active practice, or to stop the work of bogus medical colleges. Both the profession and the laity recognized the necessity of a reconstruction of the medical law on the basis of State supervision over the requirements admitting applicants to practice medicine. To meet this need, the State Board of Medical Examiners was instituted in 1890, and during the first year of its organization more than three hundred irregular practitioners were driven from the State. The next step in medical progress was the enactment of a law in 1892, regulating the practice of midwifery, which provided for the examining and licensing of midwives by the State Board of Medical Examiners, and their registration in the office of the clerk of the county in which they practice. In 1894, the medical practice act was revised, under the provisions of which the present State Board of Medical Examiners is now operating.

The present medical law of New Jersey provides for a State Board of Medical Examiners, consisting of nine members appointed by the Governor and confirmed by the Senate, and containing five regular physicians, three homeopathic, and one eclectic physician. Examinations are held in the following branches of medicine and surgery: "(Sec. 1) materia medica and therapeutics, (Sec. 2) obstetrics and gynecology, (Sec. 3) practice of medicine, including diseases of the skin, nose and throat, (Sec. 4) surgery, including diseases of the eye, ear and genito-urinary organs, (Sec. 5) anatomy, (Sec. 6) physiology, (Sec. 7) chemistry, (Sec. 8) histology, pathology and bacteriology, (Sec. 9) hygiene and medical jurisprudence," exclusive of the materia medica and therapeutics of homeopathy and eclecticism, in which the graduates of those systems are examined by their respective representatives on the Board. The composition of the Board has proved harmonious and the methods of examination equitable, during the eight years of the Board's existence.

The academic requirements of the medical law are those of a common school education, which the State Superintendent of Public Instruction has defined to consist of, "Orthography, arithmetic, English grammar and composition, geography, history of the United States, algebra and physics, or what this Board may consider their equivalent."

In no instance is an applicant permitted to come before the Board for examination unless the requirements above named have been fully met.

The medical requirements of the law call for, "A diploma conferring the degree of doctor of medicine from some legally incorporated medical college (which in the opinion of said board was in good standing at time of issuing said diploma) in the United States, or a diploma or license conferring the full right to practice all the branches of medicine and surgery in some foreign country, and have also studied medicine four years, including three courses of lectures in different years in some legally-incorporated American or foreign medical college or colleges prior to the granting of said diploma or foreign license; provided, however, that two courses of medical lectures, both of which shall be either begun or completed within the same calendar year, shall not be considered to satisfy the above requirements."

These requirements are also strictly insisted upon in the case of every applicant for examination.

A total average of 75 per cent., or 675 points is necessary "to license a candidate (he or she having otherwise complied with the law) providing that in no one section shall the pecentage be less than 50, in which case, however, the candidate may be granted a second examination immediately upon that Section. A candidate having less than 50 points in more than one Section shall be rejected, regardless of the total average."

The examination papers, together with applications for examination are deposited in the State Library at Trenton, after examinations.

At the present time, this Board endorses the certificates of examination and license issued by the Med-

ical Council of Pennsylvania and the Board of Regents of New York, together with the applications of those physicians who are now, or have been members of State Examining and Licensing Boards of other States. It is the desire of this Board to extend the privilege of endorsement to the licentiates of any State Board whose academic and medical requirements are substantially the same as those of this Board. Reciprocity of State medical license is due to the profession. The subjecting of medical practitioners of long standing to a technical examination is unnecessary and unjust. Reciprocity, however, can not be successfully carried out until a uniform minimum standard of academic and medical requirements is adopted by the different State Examining Boards.

This Board has the power to refuse to grant, or to revoke, a medical license for cause. The revoking power has not, as yet, been exercised except in the case of midwives. Neither is it likely to be exercised unless physicians have been previously convicted of criminal abortion or crimes involving moral turpitude.

The law regards as practitioners of medicine those persons who use a medical title, with or without license, or without the use of such title, engage in the customary duties of a medical practitioner, and it is framed to include the practice of mind-healing, faith-cure and similar systems.

Violation of a medical law constitutes a misdemeanor, punishable by fine or imprisonment, or both, and it is mandatory upon the district attorney to prosecute such cases when duly brought to his attention.

The act does not apply to surgeons of the United State Army, Navy, or Marine-Hospital Corps, while so commissioned; to internes of charitable or municipal hospitals, or registered dentists, or to legally qualified physicians of other States called in consultation, provided that such physicians do not open offices or places for the practice of their profession.

The medical law of New Jersey is an admitted necessity and has become popular with the profession throughout the State. It has elevated the standards of the profession by its academic and medical requirements, by its unceasing opposition to illegal practitioners, and by its supervision over practitioners of midwifery. It meets the demand of the people that the license of the State should guarantee that its possessor is qualified to conserve the public health. By its early demand that its medical diploma should only be given after four years of medical study, it has contributed to the extension of the curriculum of medical colleges, and to the organization of other State boards. It has proved itself a factor of incalculable benefit to both the profession and the public.

GONORRHEA IN THE MALE.

BY J. O. MALSBURY, M.D.
PERU, IND.

Gonorrhea is an acute, specific, infectious, systemic disease, with a local manifestation and systemic reaction. I am well aware that this statement is in variance with the almost universal statement of authors, but not so completely so with the clinician and more especially with the patient or victim. The victim of this disease, if allowed to tell his story, will give a history in the mild cases, which are but slightly infectious, of an aching in the limbs and back, just at the time of agglutination of the meatus, which, by the way, is a sign that precedes by some twenty-four hours the tingling or itching in the end of the penis, or the pearly drop so often spoken of. This acute symptom or aching will subside, usually, with the appearance of the discharge, when the local symptom (discharge) becomes the marked one, in fact the only manifest symptom. This is a point to be noted, since in the severe infectious cases, if the discharge be free at the time of severe or pronounced systemic reaction, it will all but cease during such severity, to be re-established when the severe symptoms have subsided.

This symptom (discharge) has been bombarded from time immemorial, with all sorts of topical applications and injections, and more recently with the bichlorid douche, all of which have had their so-called or supposed cures. It is universally admitted that in no other *local* inflammatory condition have efforts proven so uniformly unsuccessful. Some would explain this fact with the reasoning that the micro-organisms have already developed, penetrated the epithelial layers and formed colonies in the lymph spaces and connective tissue layers of the mucous membrane so effectually, before local treatment is begun, that no remedy will reach the deeper-seated organisms short of entire destruction of the mucous membrane.

The fact of the matter is that the symptom (discharge) is being treated under the guise of removing the cause, *i. e.*, destroying the micro-organisms, which is the sole and *local* cause of the discharge or disease. Suppose this to be the case; an ounce of pus would be a conservative estimate of the quantity of discharge thrown off in twenty-four hours; this, according to the local idea, must be formed within and *of the penis* by the micro-organisms. Now, if such were the case, the average victim would run out of penis long before the admitted time (some twelve to twenty days) for the discharge to even lessen in quantity. This discharge is a product of the body, either local or general, and certainly not local in the sense of tissue or cell destruction, for the reasons pointed out above. It must, therefore, be a product of the body in general, and gathered up and thrown off through the agency of the blood vessels or lymphatics, or be a product, *per se*, of the blood or lymph, or both, and is kicked out by nature through this particular door (urethra) through which the disturber entered, be that the gonococcus of Neisser or what not. The adherents of the local theory of this disease would account for the pus in that it is an ordinary product of a local suppurative inflammation, which is made up of leucocytes which escape from the local blood vessels in consequence of changes wrought in their coats by the local inflammatory process, including débris from broken-down epithelium, etc. This is a very fine theory, and would be more acceptable had these same adherents furnished an infallible local remedy, or shown that the phenomena following a poisonous snake bite to be a local inflammation.

In the more severe cases we have, in addition to the above symptoms, at about the end of the third week, more pronounced systemic symptoms; oftentimes a chill followed by fever and elevated pulse which, by the way, runs a little high throughout the entire acute attack, even though the temperature be all but normal; which fact shows an element of sepsis. There is a loss of appetite, coated tongue, foul breath and a feeling of lassitude together with the local symptoms,

in the posterior urethra, of pain and tenesmus, supplemented by frequent urination and oftentimes great distress during voidance of urine. The excretion of pus here will not be so abundant and that from the posterior urethra, back of the cut off muscle or external sphincter, will be thrown into the bladder and passed off with the urine. Here we have systemic symptoms almost as pronounced as in diphtheria or scarlet fever, with local treatment as ineffectual as in the above diseases. And yet, we are taught that we are dealing with a local disease, as the old writers taught diphtheria to be; but which is now universally recognized to be a systemic affection, with all but, if not quite, a specific (antoxin) for its cure.

We have yet another type of gonorrheal infection, which might very properly be termed gonorrheal septicemia. This condition is peculiar to the third or fourth week of the infection and but rarely, if ever, occurs at the acute onset of the disease. This sepsis is announced, as most septic troubles, by a pronounced chill followed by fever; 103 to 105 degrees F., and in fatal cases 108 degrees F. has been recorded. This temperature is of an intermittent character, dropping to about normal and rising to the high point once in twenty-four hours. This peculiar temperature points to a multiplication of the specific element up to the point of an explosion, or ovulation, if you please, the temperature rising and falling with the above phenomena.

Now, whether all of these conditions and shades of the same disease are due to one and the same cause or specific element, no one is able to answer positively. Some attribute it to a mixed infection, while others think it due to a susceptible system. As for myself, I am sure that we are called upon to meet these different shades of the same disease, the same as we are in diphtheria, scarlet fever, typhoid fever, etc, let the cause be what it may. It is very generally admitted that paralysis is sometimes a sequel of diphtheria, and nephritis of scarlet fever. This, to be sure, is in consequence of the systemic character of the diseases. A species of rheumatism is admitted to be a sequel of gonorrhea. Then is it not reasonable to suppose, from this fact alone, that gonorrhea is a systemic disease in the same sense as diphtheria and scarlet fever? When we point out the distinction between infection and inflammation, we have an explanation of the chronic cases of gonorrhea. Infection is a condition in which foreign media of irritation have gained access to the body either mechanically or by means of their products disturb its functions. These media are capable of being transmitted to other individuals; in most, if not in all cases, the invading irritant is of bacterial origin. The organisms, unless arrested, are prone to multiply, to spread into new territory and to transmit their toxic products to the general circulation. This, in my opinion, is exactly what occurs in gonorrhea infection. The clinical evidence is all conclusive of this fact; and if we were in need of further proof, we have only to look into the therapy applied to this disease for the past centuries and up to the present time. The local territory invaded or irritated by the organisms and their toxins becomes a center to which leucocytes in large numbers rapidly migrate, and in this way the process known as seroplastic infiltration is established. By this infiltration, a limiting wall is formed around the infected space. The formation of the limiting wall gives rise to heat, redness, pain and swelling; the phenomena of inflammation. In this view of the facts, inflammation is not really the disease, but effort to limit the disease. This wall confines the infective process to narrow limits and may protect the general system against the further infection after the initial poison has run its course; that is to say, nature has generated an antitoxin which overcomes the offending element (toxin) and the disease, so far as the general system is concerned, is at an end. We have now to consider the functional conditions of the different organs, as the liver, spleen, etc., especially where there has been severe systemic infection, while the pathologic changes will apply more especially to the urethral canal and appendages.

This brings us to so-called chronic gonorrhea or gleet, and the above explains the phenomena of the same, which is in reality only the resultant damage done the local tissue furnishing a lurking place for the remaining micro-organisms, but at the same time they are fenced off from the general system by the plastic exudate as a result of the inflammation, as has been described, but are ever ready for a new field.

Treatment in the acute stage of this disease must be largely expectant, since we have no specific to be given internally or applied locally, which will cure the disease. Our efforts then, in the present light of the etiology and treatment of this disease, will be confined largely to prophylaxis, keeping the phenomena of the disease in the middle of the road, so to speak, and preventing complications until the race is finished, or at least slowed up sufficiently to begin the repair of damages.

To strike a direct blow at the phenomena of this disease with the idea of destroying it *per se*, has proven to be a failure with the past and present therapy, as is proven by clinical facts, notwithstanding the comparatively recent developments in the etiology of this disease and therapy applied with special reference to this etiology. Even though good results have been reported, the tide is beginning to ebb and we have only to wait for another swell.

During, then, the acute stage, which will usually be from twelve to twenty days, we can not do better than to keep the parts thoroughly cleansed, the patient quiet as possible, a glass of Hunyadi water each morning, and a hot hip bath including the genitals twice or thrice daily, remaining in the water from twenty to thirty minutes. This is to be continued until the discharge becomes lessened and at the same time thinner; at which time balsam copaiba and oil of cubebs should be given as freely as the stomach will admit of, and at the same time an astringent injection should be used, preferably perhaps of an antiseptic character, as nitrate of silver, bichlorid of mercury, etc. I prefer, however, for this subacute stage, an injection of acetate of zinc, from two to sixteen grains to the ounce of water, or one dram of subnitrate of bismuth to one ounce of equal parts of water and glycerin. The injection to be repeated, at first following each urination and finally to be used each evening for a week or ten days after the complete disappearance of the discharge. This treatment applies to cases where the local symptoms are confined to the anterior urethra. The involvement of the posterior urethra is suggestive of a new infection of the general system, since it invariably occurs at about the end of the third week, the universally recognized time for the acute infection to begin to subside; and too, the symptoms (systemic) are the same as at the acute infection, only more marked. I am led to believe that these marked

symptoms and severity of attack are due, at least in a measure, for the want of a free exit for the pus, and in consequence more of its elements are retained in the blood to be thrown off through other channels. The same phenomena, in a slighter degree, occur when a strong astringent injection is used in the acute stage of the disease, which inhibits the discharge. It is a notable fact, also, that the period of decline here corresponds very closely to that of the initial infection; showing a probable repetition.

This extension or new infection, as the case may be, is important not only on account of the painful symptoms to which it will usually give rise, but also on account of the fact that, by greatly increasing the extent of the local inflammation, it renders complete recovery much more uncertain and remote, and by its proximity to other important organs greatly enhances the probability of a further extension of the inflammation to the bladder, seminal vesicles and testicles. And too, the more local surface involved increases the local inflammation and in consequence the plastic exudate, which is slow to be absorbed, and hence the great danger of permanent pathologic conditions. In severe cases of this character, absolute rest in bed must be enforced. As a diuretic for such cases, secure the daily consumption of from two to five quarts of plain water, and to this may be added boric acid or salol in doses of five to ten grains of each, four or five times daily. For the pain and tenesmus, rectal suppositories of morphia and belladonna will be found efficient. After the acute symptoms have subsided, copaiba and cubebs will be indicated until all acute inflammation has completely disappeared; then, if there yet remain any pus formation in this region, which will be ascertained by an examination of the urine, a deep injection of a solution of nitrate of silver, 1 to 8000, will be indicated.

A catheter is to be introduced just through the external sphincter and two or three ounces of the solution thrown in slowly, with any suitable syringe, which will pass into the bladder after medicating the posterior urethra. The solution is to be retained for a few minutes, then passed out through the urethra, which will medicate the entire urethral tract. For chronic cases of the posterior urethra, the same procedure may be carried out, gradually increasing the strength of the solution. In stubborn cases of this character, of which there are many, the use of sounds will lend assistance in breaking up adhesions and causing absorption of the plastic exudate.

Where the posterior urethra alone is involved, which is usually the case in these especially stubborn cases, suppositories introduced, of an astringent or even caustic character, will often give good results. Instillation of a few drops of a solution of nitrate of silver of from one to five grains to the ounce of water, just following the complete stretching of the posterior urethra with the sounds, will often prove effectual. I am ready to admit that in these chronic cases as well as the subacute, local medication alone is effective. Not because the remedies used destroy the specific element *per se*, but from their local effect in stimulating the tissue to a healthy action and thus bringing about the normal vitality, which, after all, is probably the prime factor in eradicating disease. Since it is always an astringent that yields good results in these cases, it would be natural to surmise that owing to the relaxed and softened condition of the coats of the local blood vessels, there is an escape of serum, which, through its dissolving or softening effect will not allow the epithelium to reproduce. The astringent supplies this deficiency, puts on a splint so to speak, checks this exudation and at the same time assists in restoring the coats of the vessels. In this way, then, the epithelium is reproduced, which shuts off the lurking place of the specific element, which must then move on, rather than be destroyed by the topical applications. For this reason I am not an advocate of strong, or weak for that matter, antiseptic remedies, further than their astringency. For the same reason we are not confined to any one remedy, but the principles of astringency, which may be obtained from many and various remedies, which fact probably accounts for the great number of remedies employed in the treatment of this disease, by as many different clinicians, all apparently with good results when applied in the proper manner, and more especially, at the *proper time*, which, as I believe, is never during the acute stage of the disease, for the reasons pointed out above. The action of the copaiba and cubebs is astringency and is of no avail during the immediate acute stage, but on the other hand will increase constitutional symptoms when used at this acute stage for the same reason pointed out as to the astringent injection at this period, that of inhibiting the discharge and causing the elements of the same to tarry longer in the system and finally be cast off through other channels.

The great value in these two remedies lies in their mode of application, *through the urine*, thereby avoiding all instrumental irritation, which is no small factor, especially where the posterior urethra is involved. If the case is chronic and of long standing, which is equivalent to extensive exudate, these remedies must be displaced by astringents which will penetrate deeper, and just here is where we get the good effect from the use of the sound preceding the injection or instillation; the tissue is rendered more susceptible to the remedy, hence a weaker solution may be used with better effect than a stronger one and with less pain, which is no small item to the patient, and many times financially to the physician.

It matters not in what portion of the urethral canal the disease may be located, all mechanical obstacles must first be removed or no form of medication will be successful. If located in the membraneous or prostatic portion, gradual dilatation with sounds will give the best results. When there are strictures of the pendulous portion, division is perhaps the best method of removing them.

In gonorrheal septicemia treatment which applies to sepsis in general seems to offer the best results, such as limiting the absorption of the toxins, if such can be the case. It is probable, however, that in gonorrheal septicemia there is but one time of absorption and that is at the onset, after which there is a septic element in the blood which multiplies and explodes, as has been described. The object here, then, will be to use a remedy or remedies which will destroy the septic element or its power to multiply, and to bolster up the blood so as to give it the best possible resistance to the invading septic element. For the first part, quinin at a single dose of 20 to 30 grains is given some five or eight hours preceding the chill; this is to be repeated as often as the chill repeats. For the second part, tincture of the chlorid of iron, solution of chlorid of arsenic, and bichlorid

of mercury seem to meet the requirements better than any other combination.

A word as to the irrigation method, with bichlorid solution or any other supposed abortifacient, of aborting or treating gonorrhea. I have given the bichlorid method careful trial in six consecutive cases and in each and every case there developed about the end of the third week posterior symptoms, and I have good reason to believe that this posterior extension or new infection, if you please, was due, at least in part, to the irrigating solution; since of six other cases treated about the same time, after the method pointed out above, there was only one case in which extension to the posterior urethra took place, and this was probably due to inordinate exercise—that of cycling. This irrigation brings about congestion and in consequence weakened epithelium, which is probably further softened by the too free use of water and rendered less resistant; and at the same time the infectious element is carried back from the anterior urethra and extension or new infection, as the case may be, takes place, which otherwise would probably not have occurred.

One case in particular had been a victim of this disease three times preceding this last attack, each preceding time the local symptoms confined to the anterior urethra, and each time making a complete recovery in from four to six weeks, with the plan of treatment above described in such cases. In view of his last experience, it is safe to say that there is one person who will never again submit to this irrigation method of treatment. The discharge was not so abundant in these cases; in fact, at times it would all but disappear, but at the same time the constitutional symptoms became more marked, the patient feeling and looking badly, with an elevated pulse and temperature.

ASSOCIATION NEWS.

American Medical Association.

Official Minutes of the General Sessions of the Forty-ninth Annual Meeting, held in Denver, Colo., June 7, 8, 9 and 10, 1898.

(*Concluded from page 95.*)

JUNE 10—FOURTH GENERAL SESSION.

The Association was called to order at 11 A.M. by the Fourth Vice-President, Dr. Happel.

The Secretary read the minutes of the previous general Session, at the conclusion of which Dr. I. N. Love of St. Louis, said: The minutes that have been read apply to a very important part of our work, and very little is said about the report of the Business Committee of yesterday. In the report of the Business Committee of yesterday there were fourteen different matters, if I remember rightly, that were considered, and most of them were quite important. We know that when these minutes are accepted and printed they are the action of the Association, and it seems to me, Mr. Chairman, there were several items concerning which the minutes are not clear. They are not distinct, not definite. I have forgotten the exact wording of the resolution offered by Dr. Bailey, which pertained to the appointment of a General Secretary, but the motion I offered in regard to it was that, inasmuch as the resolution involved the appropriation of money, it be referred to the Board of Trustees, which is the disbursing organization of the Association.

Secretary Atkinson—I have no motion in writing pertaining to that report.

Dr. Love—I move, Mr. President, that the minutes be corrected so as to read, "*Resolved*, That inasmuch as the resolution of Dr. Bailey pertained to the disbursement of money, that it be referred to the Board of Trustees for consideration, and report back to this Association one year hence."

I am surprised that the Secretary did not take down the substance of the motion made by me at a preceding General Session. Seconded by Dr. Ferguson.

Dr. H. D. Didama—I would like to ask whether there was any record made of such a motion by the stenographer. We suppose that the auricular appendages of the stenographer are sufficiently acute to catch all of these things, and I would like to know if the stenographer has any record of it.

(Secretary Atkinson accidentally missed a line or two relative to the action taken on Dr. Bailey's resolution in reading the minutes, and while the stenographer was searching his shorthand notes, Dr. Atkinson discovered his omission, and then read the substance of Dr. Love's motion.)

The President—It is my recollection that the motion made by Dr. Love was that, inasmuch as the resolution involved the appropriation of money, it was referred to the Board of Trustees. The Chair can not state, however, whether it was in the form of a well defined motion or not. This matter brings us to the point that if the stenographer represents the JOURNAL or the Association in his work, and is paid by the JOURNAL, he should furnish every morning a typewritten copy of the minutes, *verbatim et literatim*, to the Association. The members have a perfect right to correct the minutes. If the minutes are thought by the majority of members present to be incorrect, not as full as they ought to be—if they are not a true exponent of the will of the Association, they should be corrected.

After Dr. Atkinson had read his minutes pertaining to the motion of Dr. Love, Dr. Love said: I wish to say a few words, Mr. Chairman, from the business standpoint of this Association. Important resolutions and important actions taken by this body have for years not appeared in the official minutes. We have had from year to year just such evidences of secretarial inefficiency—absolutely—and I say now, without fear of contradiction, that the action on the resolution or motion offered by me was not read by Dr. Atkinson. He overlooked it. No man should attempt to read the minutes of an important Association like this from illy prepared notes. And, Mr. Chairman, in all kindness I will say, that I am surprised at the fact that in the reading of the report of the Business Committee and the action taken upon the particular section under consideration, we have very imperfect records. Dr. Atkinson has read from his notes that which he did not read in the beginning.

Dr. Atkinson—I was under the impression that I read the paragraph mentioned by Dr. Love, but it seems I did not do so. I wish to say in this connection that if the Secretary of the Business Committee had not carried off the resolutions that were introduced at the previous session, these mistakes would not have occurred.

Dr. H. D. Didama of Syracuse—I would like to inquire if it is the practice of the Business Committee, after reading their report, to carry it off? It seems to me it should have been handed to the Secretary. Our Secretary, Dr. Atkinson, has been placed at a great disadvantage in the matter of his minutes, owing to the fact that the Secretary of the Business Committee has carried off the reports which should be in his possession.

Dr. I. N. Love—In all kindness I desire to say, that I gave up the Loop trip simply for the reason that I felt that this was the most important meeting of the Association, inasmuch as action has to be taken upon the minutes as to the report of the Business Committee of yesterday. Time and again important reports have been made during the closing moments of the Association and hastily imperfect minutes of important records have been presented and allowed to go by carelessly and indefinitely. To show you, gentlemen, that I am not springing any new thought, I will say that at the Baltimore meeting, and at numerous other meetings, there have been severe criticisms passed upon the Secretary. Dr. William Osler made a statement at Baltimore, as representing the local Committee of Arrangements there, which severely reflected upon the Secretary of this Association. Unfortunately, he made the criticism in a very severe manner. But I understand that important resolutions presented at previous meetings of the Association have been left out of the printed records. One important resolution, an amendment to the Constitution, which affected the position of the Permanent Secretary, was left out of the minutes by the Secretary. I wish to say, in all kindness, that the office of Secretary is not a sentimental office. The office of Secretary is the business end of the Association, and I would advise the Secretary hereafter to see to it that the stenographer, paid by the Association, shall take a record of every point made regarding reports.

Dr. J. W. Graham, of Denver—Every one knows that it is a very difficult thing for a secretary who is not a shorthand writer to take notes of all business that is transacted in the general sessions of an Association like this. I do not think we

should expect our Secretary to do it. No man can do it. In this age we have specialists for this kind of work, and it seems to me that the stenographer should have his report prepared at all times, ready to be read. It seems to me that the stenographer can clear up these matters by reading his notes, and that we should look to him for a full report instead of to the Secretary.

(The stenographer told the Chair that he was ready at any time to read his shorthand notes when called upon to do so.)

Dr. Atkinson—There would be no trouble in keeping the minutes of the Association, if the members wrote out their resolutions and handed them to me. (Applause.) My friend, Dr. Love, refers to an omission at the Baltimore meeting, and I will say that it was caused by the neglect of the person who offered the amendment to present it to me in writing, and I notified the editor of the JOURNAL of this fact when I sent my minutes to him to be printed in the JOURNAL. I wish to say in defense of myself that I have always been in the habit of keeping in regular order every motion or resolution that was offered and handed to me in writing. When it comes to making a stenographic report of the amendments introduced on the floor, it is another thing, and I hope from this time forward the President will demand, before any action is taken upon any resolution or motion, that it shall be presented in writing to the Secretary. (Applause.)

Dr. Love—I make the point, Mr. Chairman, that the Secretary has been in the service of the Association for twenty-five years, and that it is his duty, at all times, to assist the Chair. I do not believe a single motion pertaining to any one of the Sections contained in the report of the Business Committee was called for in writing. I agree with the Secretary that every resolution pertaining to anything should be put in writing. It is the duty of the Secretary to offer suggestions to the Chair, because we are here for executive work. Those gentlemen who have lent their sympathies this morning with the Secretary have very little knowledge of the records of the past. I am not alone in making this statement. I am willing to be criticised, if necessary, but those who know me know that I would rather remove my right hand than to be unjust to any man. (Applause.)

(No action was taken on Dr. Love's motion.)

The President—The minutes are a little indefinite in regard to the action taken by the Business Committee on the suggestions contained in the President's address, and I will ask the stenographer to read his shorthand notes on that point.

The stenographer then read part of his notes of the report of the Business Committee on the President's address, as follows:

"While your Committee is duly in sympathy with the recommendation of the President as to the admission of members to the Association under the conditions mentioned, still under the existing laws of the Association it does not feel competent to recommend its adoption."

The President—The minutes are now clear on that point.

Dr. W. L. Wills of California, offered the following amendment to the Constitution:

Article IV—Officers. Amend to read: "The following officers, President, four Vice-presidents, Treasurer, Librarian, Secretary, Assistant Secretary and Chairman of the Committee of Arrangements shall be nominated by a special committee of one member from each State represented at the meeting, and shall be elected annually by the vote of a joint ticket, and shall hold office until their successors are elected." (Lies over for one year.)

Dr. T. J. Happel of Trenton, Tenn., offered the following:

Resolved, That an exact time be fixed at future meetings of the Association by the Committee of Arrangements for the different General Addresses to be delivered before the American Medical Association, and that when that hour arrives all business must be laid aside until the Addresses have been finished.

Seconded by Dr. Love and carried.

Dr. C. Lester Hall of Kansas City, Mo., offered the following:

Resolved, That it shall be the duty of the Permanent Secretary to furnish the incoming Secretaries of Sections with a list of the names of those attending the various Sections each year. Seconded.

The Secretary—In moving the adoption of this motion I would like to make a remark. I would say, Mr. Chairman, that for a number of years I have sent a note to the Secretary of each Section asking him to keep a registration book for the purpose of containing the names of those who attended the Section, and this year I have had two Sections that have agreed to do this and have promised to turn over to me the registration book. I shall, in accordance with this resolution, if adopted, do as I have done before, write a note to the Secretary of each Section asking that he keep a registration book.

Dr. Love, speaking to the resolution offered by Dr. Hall—I would suggest that every member of the Association when he registers place the name of the Section which he will attend and in which he will vote for Section officers. It seems to me if a record of the registration is kept by the Secretary of the General Sessions it would very easily enable him to furnish, as requested by the resolution, a complete list to the incoming Secretaries of all registered members in each Section. We all know that secretarial duties are burdensome; that they require experience and special adaptation. The Secretaries of the Sections are oftentimes selected hastily, with a view, possibly, to their prominence as practitioners and workers, knowing little about their secretarial positions. While it is difficult to secure efficient secretarial work from the different Sections, it seems to me it would be the easiest thing in the world for the Permanent Secretary to furnish the information asked for in the resolution that has been read. That is all he needs to do.

The resolution as offered was adopted.

The following are the officers of the various Sections for the ensuing year:

State Medicine—Arthur R. Reynolds, Chicago, president; W. P. Munn, Denver, secretary.

Stomatology—George V. I. Brown, Milwaukee, president; Eugene S. Talbot, Chicago, secretary.

Cutaneous Medicine and Surgery—W. T. Corlett, Cleveland, president; J. M. Blaine, Denver, secretary.

Diseases of Children—Henry E. Tuley, Louisville, president; J. L. Booker, St. Louis, secretary.

Surgery and Anatomy—W. J. Mayo, Rochester, Minn., president; M. L. Harris, Chicago, secretary.

Physiology and Dietetics—J. Weir, Jr., Owensboro, Ky., president; Lee Kahn, Leadville, secretary.

Obstetrics and Diseases of Women—A. H. Cordier, Kansas City, president; W. D. Haggard, Jr., Nashville, secretary.

Practice of Medicine—Frank Billings, Chicago, president; Carroll A. Edson, Denver, secretary.

Ophthalmology—Casey A. Wood, Chicago, president; A. H. Williams, Boston, secretary.

Materia Medica, Pharmacy and Jurisprudence—T. H. Stucky, Louisville, president; Leon L. Solomon, Louisville, secretary.

Laryngology and Otology—P. R. Holmes, Cincinnati, president; Emanuel Mayer, New York, secretary.

Dr. X. C. Scott of Cleveland, Ohio, read the following report of the Judicial Council.

REPORT OF THE JUDICIAL COUNCIL.

Your Council reports on matters referred to it, as follows:

They have ordered their Secretary to send all documents pertaining to the standing of the Santa Clara County Medical Society and Santa Clara County Medical Association, of Santa Clara County, California, to the State Medical Society of the State of California for adjudication and to report their finding to this Association.

The Secretary of the Council has been instructed to forward to the State Medical Society of Colorado, the charges and protest preferred by H. Angus Sims against H. W. Kirby and H. V. Towaner of Cripple Creek, Colo., for investigation and adjudication.

In regard to the matter of appeal of W. F. Barclay of Pittsburg, Pa., the Secretary of your Council has been instructed to inquire of the State Medical Society of Pennsylvania why they have made no answer to the communication which was sent by your Council to said State Medical Society of Pennsylvania immediately after the annual meeting of 1897.

Your Council requests and insists that all communications, documents or papers received by the Permanent Secretary, pertaining to business or matters before or to be before the Council, shall be forwarded by him, upon their receipt, to the Secretary of the Judicial Council, and that such communications, documents or papers shall not be delivered or forwarded to any other member of the Judicial Council.

H. D. DIDAMA, President.
X. C. SCOTT, Secretary.

On motion the report was adopted.

Dr. I. N. Love—The Board of Trustees have presented the following recommendation: That the following Committee on Transportation be appointed to correspond with railroads as to rates, and make the best possible arrangements for the Columbus meeting. The Committee recommends Dr. H. L. E. Johnson of Washington, D. C.; Dr. I. N. Love of St. Louis, Mo.; Dr. Charles A. L. Reed, of Cincinnati, Ohio; Dr. X. C. Scott of Cleveland, Ohio; Dr. Starling Loving of Columbus, Ohio; and Dr. E. D. Ferguson of Troy, N. Y.

On motion, the recommendation of the Board of Trustees was adopted.

Dr. Mayer extended an invitation to the Association to visit Cripple Creek, and to become the guests of the medical society of that district.

On motion of Dr. Love, the invitation was accepted with thanks and the keenest appreciation.

Dr. X. C. Scott offered the following resolution, which was adopted:

Resolved, That the Permanent Secretary be required to bring the minutes of the Association of previous years so that they may be referred to if necessary.

Dr. I. N. Love offered the following:

Resolved, That the Permanent Secretary be required to have the stenographic report of the proceedings transcribed and ready for consideration and correction, if need be, each day before being adopted.

Seconded and carried.

The following resolution was offered and carried:

Resolved, That the Secretary be instructed to furnish a copy of the Constitution and By-Laws and Code of Ethics to the proper authorities who have the preparation of the program, with instructions to print the same in the regular official program each year hereafter.

Dr. Henry O. Marcy of Boston, offered the following resolution: As we are near the close of the session I rise to a question of privilege. We have all enjoyed the hospitalities of Denver in an exceptional way. For twenty-three years I have been a constant attendant upon the meetings of the Association; we have profited by the hospitalities and by the assistance of the various local committees in each of the different cities where we have held our meetings. Wherever we have met one city has tried to rival another, until we have been led to think that there was no end to hospitality. I am quite sure I voice the universal expression of opinion of the Association when I say that I have not heard anything else save that of *éclat* concerning the manner in which the profession and citizens of Denver have so royally received and magnificently entertained us. We have each and all of us had a rare opportunity of witnessing and of personally enjoying and profiting by the hospitalities of the entire city. First of all, we have to thank the Chairman of the local Committee of Arrangements Dr. J. W. Graham, who has been such an efficient chieftain, and to him personally would I ask that this Association extend its thanks. Then the various associations and corporations of the city have each vied with the other in doing everything possible to contribute to our comfort, pleasure and convenience. We also wish to express our thanks to the railroads for reduced rates, the public press for reports of the proceedings of our sessions, and the various associations, including the ladies, who have done so much to contribute to our comfort and happiness. We wish to return thanks to the citizens of Denver for the hospitality which we have received at their hands, and for the extraordinarily agreeable way in which they have made our visit pleasant, and for the delightful reminiscences which will ever come back in memory of the hours we have spent here during the last week.

Dr. Henry P. Newman of Chicago—In rising to second the resolutions offered by Dr. Marcy, I feel that every member of the Association will heartily second what he has said. Having come in contact with the Committee of Arrangements in a business way, which many of you have not, I wish personally to testify to the efficient work of all of the different departments, and I feel that we owe the local Committee of Arrangements our heartfelt thanks, who have contributed so much to the success of the meeting held in this city.

Dr. I. N. Love of St. Louis, Mo.—As a member of the Board of Trustees, I know I voice the sentiments of the entire Board when I endorse and emphasize all that has been said so eloquently and sweetly by Dr. Marcy. At the same time I wish to particularly emphasize our appreciation of and for the gentle, graceful and efficient manner in which the Chairman of the Committee of Arrangements, Dr. Graham, has conducted the work. It is rare, indeed, that a man is possessed of such executive ability as he has displayed, the ability to select the right man and the right set of men to do the work as well as it has been done here. I appreciate from an editorial standpoint the fact that the Chairman of the local Committee of Arrangement has demonstrated that he is superb in the use of the scissors in being able to clip from the great mass of the profession the right men in the right way, and place them with his paste at the right place, and this particular man has never been absent from his post—never. (Applause.)

Dr. J. W. Graham of Denver—I ask you to include in your vote of thanks the entire profession of Denver, and I wish to say that I do not think there is a better body of men on earth to co operate with in such work.

The resolutions of thanks were then unanimously adopted by a rising vote.

Dr. X. C. Scott of Cleveland, Ohio, offered the following:

Resolved, That we extend a vote of thanks to the various traffic associations and railroads which have granted the concessions asked for by this Association.

Seconded and unanimously carried.

Dr. I. N. Love—I wish to offer the following:

Resolved, That a special vote of thanks be given to the Union Pacific, Texas and Gulf, Denver and Rio Grande Railways, etc., for the most extraordinarily liberal courtesies they have extended to this Association.

Seconded and unanimously carried.

The President (Dr. T. J. Happel)—The Chair would state that the idea of presiding over the General Sessions of the Association before arriving here had not entered his head; that it has been done on the spur of the moment, and if there have been any errors in the rulings of the Chair they are errors of the head and not of the heart. Everything was done with an effort to promote and expedite the business of the AMERICAN MEDICAL ASSOCIATION. I think the members will bear me out in the statement that the business that was transacted in the Association yesterday was for the purpose, if possible, of settling a matter, and that whatever rulings the Chair made they were not made for the purpose of wounding the feelings of anyone connected with the matter. I tried to do equal justice to all parties connected with the transaction. (Applause.) The Chair desires to extend to the Association his thanks for the order which was observed during the administration of the affairs of the Association, and to state he has never been in any organization which has behaved in a more orderly, respectful and respectable manner. (Loud applause.)

Dr. Happel then presented Dr. Mathews in the following words: As Vice-President of the AMERICAN MEDICAL ASSOCIATION, and of the administration which is just passing out, I take great pleasure in presenting to you the incoming President for the year 1898-9, Dr. Joseph M. Mathews of the city of Louisville, Ky.

Dr. Mathews was very warmly received. He spoke as follows:

Mr. President and Gentlemen of the Convention—Words fail me in trying to attempt to thank this Association for the honor they have conferred upon me. For nearly twenty years I have been trying in a humble way to serve this body. I have sat at the feet of the great men of this profession, and in accepting this distinguished honor from this great body, when I reflect back upon the days when this Chair was occupied by that venerable man, Dr. N. S. Davis, and my illustrious predecessor, Dr. Sternberg, I must say that I feel great diffidence in attempting to fill this Chair. Yesterday, as I looked over this great body and reflected that during the twenty years that I have been identified with the Association hundreds that I knew then are now dead and gone, it made my heart sad. One of the most pleasant things connected with the membership of this great body is that we make friends, lasting friends, friends that will serve us always, and in the interim between our sessions our hearts go back to our meetings, because we feel the warmth of their influence and know that their hearts went out to us, and it is my hope that not a single member will drop out of our number between now and the next meeting. It is sad to think that each year some one of our many friends has been taken away, and so the Convention goes on forever. I believe the time is near at hand when it will be recognized that if a man in the medical profession of the United States is not a member of the AMERICAN MEDICAL ASSOCIATION he is not a reputable doctor. (Applause.) I believe that each year will add to our ranks many noble men, and I want to ask the indulgence of the Association always for the younger men, that they may be cared for; that they may be taken into the embrace of the Association; that they may be made to feel at home always. By so doing we make better men of them; we make better doctors of them, and let us see to it that the membership be added to from the younger ranks of the profession. (Applause.) Gentlemen, during this year and the coming year I shall try to do my duty. I hope some one will offer a resolution thanking the presiding officer (Dr. Happel) for the efficient manner in which he has conducted the deliberations of this body. We are deeply obligated to him. Please, gentlemen, accept my hearty and sincere thanks for the distinguished honor that you have conferred upon me. (Loud applause.)

Dr. I. N. Love—I move you, sir, that a special vote of thanks be given to Dr. T. J. Happel of Tennessee, for the superb and skilful manner in which he has conducted the deliberations of this Association, and for the thoughtful care with which he has looked at every detail of the business management of our sessions. The efficient manner in which he has presided ought to be an example to every one who follows in the Chair. (Applause.) We also wish to thank Dr. J. L. Thompson of Indi-

anapolis, for his grace and skill as a presiding officer, and especially to thank Dr. Jayne, the local Assistant Secretary.

Seconded and unanimously carried.

Dr. J. W. Graham of Denver—I want to add a little more emphasis to the vote of thanks extended to Dr. W. A. Jayne of this city, the Assistant Secretary. It is rare to find a man who has filled the office so capably and so acceptably as he has done. He has been my right arm throughout the year, and has made it possible to make the meeting a great success. (Applause.)

There being no further business to transact, on motion, the Association adjourned to meet in Columbus, Ohio, the first Tuesday in June, 1899.

SOCIETY PROCEEDINGS.

Chicago Medical Society.

The annual meeting of the Society was held in the new Society rooms of the Stewart Building, Wednesday evening, June 29, 1898, with the President, Dr. FERNAND HENROTIN, in the Chair.

The Secretary read the minutes of the previous meeting, which were approved.

The Chairman of the Membership Committee, Dr. J. H. Stowell, reported favorably upon the following applications, and they were elected: Drs. D. H. R. Patton, J. E. Woodbridge, W. E. T. Michelet, C. C. Hunt, F. E. Bigelow, S. A. Mathews, F. A. Goetz, J. F. H. Lugg, A. C. Broell, Josephine A. Jackson, Emil Amberg and Walter L. Vercoe.

The next thing in order was the report of the Secretary, which was read by Dr. ARTHUR R. EDWARDS.

The report stated that from 1888 to 1897 there had been 615 additions to the Society, and that during the past year there had been an increase in membership of 234. Of this number two failed to qualify; three were suspended for non-payment of dues; eleven died and ten resigned. The Society had now a membership of 902, including those elected at this meeting.

The average attendance for the thirty-nine meetings during the year was 110.

On motion of Dr. Harris the report was accepted.

The Treasurer's report was read by Dr. S. C. Plummer, showing a healthy condition of the Treasury.

On motion this report was received and referred to the Auditing Committee.

Dr. ARCHIBALD CHURCH made a verbal report as editor of the Society, stating that the character of the papers that had passed through his hands during the year as compared with those of previous years was very much superior. Not only had there been a large increase in the amount of work done by the Society, but the individual character and tone of the papers from a scientific standpoint had been distinctly elevated as compared with previous years. Nearly all of the papers had been published in the *Chicago Medical Recorder*, and many of them simultaneously in other medical journals.

On motion of Dr. Ridlon, the report of the editor was accepted.

Dr. J. H. STOWELL, Chairman of the Membership Committee, stated that during the past year the work of the Committee had devolved upon Dr. Newman and himself, owing to the long sickness and finally the death of Dr. Paoli. The Committee had endeavored during this time to do its work conscientiously and faithfully. It had corresponded in a great many cases in regard to applicants to find out their standing, and while the Committtee did not expect they had kept every man out that ought to be kept out, still it had tried to do so.

Dr. E. J. DOERING reported, on behalf of the Publication Committee, that for the ensuing year the *Chicago Medical Recorder*, the official organ of the Society, would not be able to offer any prizes on account of the increased expense of publishing the proceedings of the Society, this expense during the past year amounting to about $1000.

The Committee awarded Dr. M. HERZOG a prize of $100 for his paper on "Superfetation in the Human Race." And also a prize of $100 to Dr. ARTHUR D. BEVAN for his contribution on "Surgery of the Gall-Bladder."

Dr. GRAHAM, a member of the Library Committee, said the Committee had held several meetings and conferences with the authorities of the Newberry Library during the year. The medical department consisted of 30,303 bound volumes, 25,000 pamphlets, and there were continually on file 450 different medical periodicals. The library was now more complete than it had ever been, and the authorities promised to make further additions in the near future, especially in the nature of reference books. The library, however, lacked odd volumes or numbers of important periodicals. The trustees of the library would pay more attention to increasing its usefulness if the members of the profession in the city and surrounding country took more interest in it. The Committee and library authorities believe that much good could be accomplished by members of the profession corresponding direct with the Newberry Library. Their communications would receive prompt attention, and abstracts of medical journal articles would be furnished physicians at a small remuneration. The Committee recommends that a notice or announcement of this be published in the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

On motion, the report was accepted.

The Necrologist, Dr. HERMAN PETERSON, reported the deaths of ten members during the year. On motion the report was accepted and placed on file.

President HENROTIN then delivered his address, in which he spoke of the establishment of permanent quarters for the Society, believing that no mistake had been made by inaugurating this movement, and in order to do this it was necessary to secure funds. The manner of securing these funds was outlined. He directed attention to the renewed interest taken in the work of the Society, the improvement in its quality, and the proper dissemination of the material brought before it.

The Society proceeded to the election of officers, with the following result: President, Arthur Dean Bevan; first vice-president, J. C. Hoag; second vice-president, Henry B. Favill; secretary, Arthur R. Edwards; treasurer, S. C. Plummer; necrologist, Herman Peterson. Board of Trustees: Drs. James B. Herrick, Frank Billings, and F. Henrotin, for three years; Drs. N. S. Davis, Jr., S. C. Stanton and Wm. H. Wilder, for two years; and Drs. John Ridlon, Sanger Brown, and Harold N. Moyer, for one year. Judiciary Committee: L. L. McArthur for one year; Harold N. Moyer for two years; F. Henrotin for three years. Membership Committee: J. H. Stowell for three years; Henry P. Newman for two years, and James B. Herrick for one year. Publication Committee: E. J. Doering for three years; Henry T. Byford for two years and Frank Billings for one year. Auditing Committee: D. W. Graham for three years; N. S. Davis, Jr., for two years, and Hugh T. Patrick for one year.

The revised Constitution and By Laws, after more or less discussion of certain sections, were adopted.

Dr. SANGER BROWN gave notice that he would amend Article 7, after Section 3, at the next meeting, so as to read that "Any member in good standing may become a life member upon the payment $100, and shall thereafter be exempt from the payment of annual dues." In addition to this and following it in another paragraph he desires the change made that "Any life member who has been a member of the Society for ten years may be elected to Fellowship upon submitting to the Society satisfactory evidence of fitness for such distinction."

Dr. D. W. GRAHAM also gave notice of an amendment to be offered by him at a subsequent meeting.

Secretary Edwards was voted an honorarium of $250, and the Treasurer an honorarium of $200.

The editor of the Society will not accept an honorarium of $200 during the coming year, but asked that the money go towards furthering the interests of the Society.

Dr. SANGER BROWN spoke of the great importance of having the medical library located in the heart of the city, saying that if it was located down town many of the members could spend an hour or two hours a day with profit in consulting medical literature, and urged that a committee be appointed by the president to agitate this matter.

Dr. TRUMAN W. MILLER stated that the trustees had taken this matter up.

Dr. D. W. GRAHAM thought it was a mistake to abolish the Library Committee, saying that the committee had had the subject under consideration for a year, getting facts and information and had possible plans in view. The information the committee had received was that the Crerar Library would be glad to have a medical department. The other two factors to be considered were the moving of the medical department of the Newberry Library to the Crerar Library. In order to do this it would be necessary first to obtain the consent of Dr. Senn and second the consent of the trustees of the Newberry Library, and undoubtedly this could be obtained.

President HENROTIN thought the Board of Trustees as a body would have more influence in effecting such a change than a committee of three.

The President then appointed Drs. Doering and Miller to escort the newly elected president to the Chair.

Dr. BEVAN was very warmly received. He thanked the Society for the distinguished honor conferred upon him and said he would pledge himself to take a very active interest in the work during the coming year, and he would endeavor as

far as possible to carry out the very broad scheme that had been inaugurated by his distinguished predecessor.

The Society then adjourned until the second Wednesday in September.

Chicago Ophthalmological and Otological Society.

Discussion on Dr. Hotz's Case.

Dr. WÜRDEMANN—This morning I removed an eye I had been nursing for four weeks, not believing that it contained a foreign body. I first saw the case a day and a half after the accident, when I found an ulcerated wound of the cornea, prolapse of the iris and evident infection. The prolapse was cut off and the infection treated. The history of the case seemed to show that the foreign body was a large one, and I did not believe it to be in the eye. Three weeks after, a skiagraph was made which showed the foreign body to be present. This morning I tried to remove the foreign body after incising the cornea, but I was unable to do so with the magnet and had to remove the eye. The foreign body was found in the eye, covered with firm exudate. In six cases I have removed pieces of steel with the magnet from the iris and the lens, but have never removed a piece from the vitreous. I believe it possible to do so only immediately after the accident.

Dr. PINCKARD—I take it Dr. Hotz reported this case particularly because the foreign body was removed through the wound entrance. The only successful case I ever saw where a foreign body was removed from behind the lens was one in which a piece of steel was removed through the wound entrance. In almost every case which I have seen, the eye was blind within a year afterward. This particular case was a piece about eight millimeters long and four thick, a piece of chisel that went straight through the center of the cornea. The case was sent at once, so that I saw it inside of an hour after the injury. The first time the magnet was introduced I got the click; the second time the steel came to the lips of the wound, and the third time I got it out. This was about four years ago, and the patient's vision in that eye is now about one-tenth. I have seen several cases where the eye has been saved, but there was no vision.

Dr. GRADLE—Among eight cases I have had two instances of success in removing steel from the eye. One was removed on the fourth day and could be seen distinctly with the ophthalmoscope. It was removed through an incision in the sclera. Two months later the vision was $^{20}/_{30}$. The second case was seen six months after the accident on account of failing vision. The foreign body was easily seen with the ophthalmoscope. Extraction with the magnet was easy and there was no reaction. Eight months later the vision was $^{20}/_{70}$.

Dr. WILDER—The results reported are brilliant, but such results encourage this operation altogether too much. Many cases of detachment of the retina, resulting from unsuccessful removal of foreign bodies, would not do nearly as much harm if left alone. If all cases of operation by the magnet were reported after the lapse of several years, we should find that the number of successes would be very small, certainly not sufficient to justify doing the operation as often as it is done. A positive indication for this operation is when the steel can be seen lying in the iris or lens, or in the vitreous. If the eye is quiet and the steel is firmly adherent, I see no occasion for an attempt at its removal, as nature will soon cover it with an exudate. To operate when the steel can not be localized, and only on the supposition that the foreign body is in the eye, seems to me injudicious.

Dr. TILLEY—Early in the history of this Society I exhibited two cases with steel visible in the retina. In both cases the eyes were quiet and there was some limitation of vision, but not much. I had one case in which the patient persisted that there could be no steel in the eye. I finally persuaded him to have the eye removed and there was found a piece of a cold chisel a little more than three quarters of an inch long.

Dr. MONTGOMERY—The only case of successful removal of steel which I have had was one in which I introduced the magnet through a new opening. The case came to me within an hour after the injury. The bit of steel could be seen with the ophthalmoscope. I made a section through the sclerotic and removed the steel without difficulty.

Dr. HAIGHT—I recently had a case where a piece of steel had remained in the eye for sixteen years. The eye was blind, but owing to the severe pain of the inflammation I removed the steel. The patient refused to have the eye enucleated.

Dr. FISHER—In my experience it has been very rare to retain serviceable vision after removing a piece of metal from the interior of the eye. This should not condemn the magnet, for when we have a piece of iron or steel in the interior of the eye conservative surgery demands the removal of the metal or of the eye.

In regard to Dr. Tilley's case, I saw the first one at the time and also some eighteen months after he discharged it. A piece of metal was shining in the choroid, the media was clear and the vision was about one-half when he left Dr. Tilley. At the time I saw him the eye was in a very serious condition; the lens was opaque and there was a mild cyclitis. He refused enucleation. At the time Dr. Tilley discharged him, this might have been called one of the most hopeful cases of foreign body in the eye, yet the subsequent history shows how dangerous the leaving of such a substance is.

Dr. HOTZ—It seems to me that Dr. Wilder's position can not be sustained by clinical facts, if he says that the magnet does more harm to the eye than the foreign body, and that nature will cover the foreign body with an exudate to make it innocuous. I think it is a well known fact that nature does not do anything of that sort, as a rule, and that the foreign bodies in the posterior part of the eye, in the majority of instances, will destroy the usefulness of the eye and prove a source of danger to the other eye. The object of the magnet extraction of the foreign body from the eye, in the first place, is to save that eyeball for the patient, even if no sight is to be saved; for the blind eye, even with a detached retina, is certainly better for that patient than a glass eye; and, therefore, even if it were true that the disturbance by the magnet in the vitreous leads to detachment of the retina, that should not debar us from doing the operation, if we have a good prospect of preventing deleterious inflammations, cyclitis, etc., that the foreign bodies are apt to set up. To remove the foreign body, as the Doctor says, when it is located in the iris and lens, and in the vitreous only if it can be located with precision, is another remark which surprised me, because it is just in the iris and the lens that foreign bodies may remain a good while, and in the lens particularly, without doing any particular harm, except clouding up the lens, but not endangering the future of the eye.

I am far from encouraging the promiscuous operations, if I may so say, and I have taken opportunity in the past to discourage the use of the magnet for removing a piece of steel in the eye when an extensive cyclitis has taken place which in all probability will destroy the eye, whether the foreign body is retained in it or whether it is extracted. I advise the operation in the early stage, as soon as possible after the accident, especially before any inflammation has set in, and I do the operation, as I have said, in the first place, for the purpose of removing the cause of deleterious inflammation, to preserve the eye, no matter whether or not in that eye the sight will be restored. In the case I have reported, where the foreign body was lodged in the ciliary portion of the choroid, I think it would have been very risky, and on my part reckless, to leave the foreign body in its position, because in that vicinity it was bound to set up inflammation sooner or later that would lead to the destruction of that eye and probably jeopardize the other eye.

OPERATION AND AFTER TREATMENT OF CATARACT. PREPARATION OF THE PATIENT.

Dr. GRADLE—In order to minimize the danger of cataract operation, we should aim first to have the patient in the best possible state of health; secondly, to guard against avoidable infection. On the first subject I can state nothing but self-evident truths. If the patient has passed through any disease likely to interfere with his resisting power for the time being, it is to his interest to defer the operation. Cataract is not an operation of emergency, but one for which the time can be selected. If, therefore, he is in a condition at the time which may in any way endanger the success, delay is advisable. Thus the persistence of a severe cough, or any form of intestinal disturbance likely to prevent the quietude of the patient should cause us to delay. Whether in diabetes, so frequently a cause of cataract, we should delay the operation until we get the effect of an antidiabetic remedy, is perhaps an open question. The results of operating during diabetes have not been unfavorable on the whole, but it seems to me wiser to diminish any possible source of trouble by reducing the excess of sugar, for clinical observation has shown that diabetic patients are very liable to pyogenic infections.

Of more importance is the second division of our subject, namely, the combatting of any avoidable source of infection. The most important topic to which I can refer is purulent inflammation of the tear sac. Unless it is absolutely unavoidable, we should never perform a major operation on the eye while the tear sac secretes fluid. If there is no time for the cure of the condition, we must resort either to extirpation, or at least to temporary exclusion by completely closing the puncta with the cautery and assuring ourselves that they are absolutely closed.

In case of conjunctival disease, the operation should also be deferred until an absolute or relative cure is obtained and no further secretion exists. Blepharitis, too, should receive attention before an operation is attempted. At the time of the operation we should sterilize the skin and lashes by scrubbing with soap and water and any efficient antiseptic, so as to obtain as sterile a neighborhood as the general surgeon would demand. It is a different question, however, regarding the conjunctiva. Observations have shown that the conjunctiva, even when normal, has harbored germs, sometimes virulent germs. The observations by Gelpe have made it likely that the more normal the conjunctiva, the less is the probability of existence of pathogenic germs. This would indeed agree with clinical observations as to the danger of the operation. It has, however, been shown conclusively by Randolph, and by some continental oculists, that it is impossible to sterilize the conjunctival surface either by flooding with sterile fluids or with efficient antiseptics. The latter, especially corrosive sublimate, are not merely useless, but absolutely undesirable on account of the irritation to which they give rise. By reason of the secretion which they produce I would consider them a menace instead of a benefit. We must hence take our chances at present as regards infection from the conjunctival surface and simply avoid the possible infection from impure skin, soiled lashes, or infected instruments.

THE INCISION.

Dr. MONTGOMERY.—A proper knife is of the utmost importance. I prefer a knife whose breadth is at least two and one-half millimeters.

As to the incision itself, I began first with the Graefe modified linear, and used that for a number of years. Then I changed to one almost entirely in the cornea, but for the past eight or ten years I have made my incision just back of the limbus, including about one-third of the circumference, and terminating with the conjunctival flap. I use this incision whether for simple or combined extraction. It is essentially what is known as the old flap. My experience has been that we are not more apt to get a prolapse with this than with other forms of incision; and its great advantage is that we are more certain of a rapid healing of the wound, and it is the flap I consider of importance as coapting the cut edges.

IRIDECTOMY.

Dr. HOTZ—As a safe advice to beginners I should say, by all means operate with iridectomy, because that operation is applicable in all cases, because the delivery of the cataract is easier, and the removal of the cortical remains can be more thoroughly done after the iridectomy than through the intact pupil. I know it has been said that those who perform an iridectomy must give good and sufficient reason for justifying the mutilating of the eye. That is true; we should avoid mutilation if without it we can accomplish our object with safety and without taking any risks. Now, are there any advantages in the simple operation? The cosmetic advantage of the central round pupil counts for little. The eye is hidden by the thick glasses; it takes a close inspection to see whether the pupil of that eye is mutilated or not. I have never in my life heard a cataract patient complain of mutilation, or about any annoyance that could be referred to the iridectomy. The vision in the eyes operated upon with the iridectomy comes up to the same standard as in eyes with the simple operation. We have all varieties of vision in one class as well as in the other. That is about all there is to say about the advantages of leaving the pupil intact. But, on the other hand, we have always to fear prolapsus of the iris, which happens to all operators; no matter how experienced an operator is he can not foretell in a given case whether it will happen or not; and if it does occur, the immediate excision of the prolapsus will change the condition of the eye to that as if the iridectomy had been done at once; or if the prolapsed iris be not removed, it will set up troublesome inflammation of the eye and lead to unpleasant results. I feel much safer and easier at mind about the operated eye, when iridectomy has been done than when it has not been done, and therefore, as a rule, I adhere to the operation with the iridectomy.

For a while I have been a sort of an eclectic. After having made the incision, I let myself be guided by the behavior of the iris. If it remained quiet in the eye and did not prolapse at once, or if after the removal of the cataract the iris promptly slipped back into the eye, I abstained from iridectomy relying upon the sphincter muscle to hold the iris back in the eye if the wound should open again and the aqueous humor escape. That seemed to work in a number of cases very nicely, but sooner or later I had some bad results. In spite of all the good behavior the iris showed during the operation, on the next day in opening I found the iris protruding, and while in some cases the excision of the prolapsed iris quieted the eye, in two instances it did not arrest the cyclitis, and the eye was lost; in one case it even necessitated the subsequent enucleation of the eyeball.

CAPSULOTOMY AND EXPRESSION.

Dr. BEARD—In regard to the cystotome, I use a modification of the old Graefe instrument, the modification consisting in a change in the angle of the point and the rounding of the angular heel. The shank is straight and not malleable, and consequently the point rotates in a line with the handle. The introduction of the instrument should be done with the greatest care. Having pushed the cystotome, heel foremost, into the incision, passed it down flatwise between the iris and cornea until you reach the point where you desire to make the cystotomy, then turn the point toward the capsule, and make your incision quite extensive, the so-called peripheral cystotomy.

In the expression I use two spoons, one a flat one for depressing the lip of the wound, the other for coaxing out the nucleus. One must be careful not to press too long on the cornea and cause the lens to pop out suddenly, as the vitreous may follow. For the soft portions of the cortex left behind, manipulation with the spoon is often sufficient. If not, they may be removed with the handle of the spatula.

DRESSINGS.

Dr. WOOD—(See Report of the AMERICAN MEDICAL ASSOCIATION for 1897.)

SECONDARY OPERATIONS.

Dr. WÜRDEMANN—I find it necessary to do a capsulotomy in about six out of ten cases. The operation is done through the cornea by means of two needles, except where the capsule is very thick, when I use scissors. I have found it usually necessary to make but one capsulotomy. The needles should be sharp-cutting needles, those of Knapp preferred. A secondary operation is sometimes necessary for removal of cysts of the iris. These are preferably incised and compressed rather than cauterized.

C. P. PINCKARD, Secretary.

SELECTIONS.

Uncommon Form of Idiosyncrasy Contra Asparagus.—Among the curiosities of medical literature are the stories, many of them well authenticated, of the peculiar susceptibility of some unfortunate individuals to certain odors and emanations. Among the substances which have been known to produce attacks of spasmodic asthma are roses, musk, tea, ipecacuanha, the odor of a cat, fried fish, the dust of oats, malt, rice, feathers, wool and that caused in the demolition of old houses. Dr. Eugene Deschamps has added asparagus to this long list. He has published a full clinical report of a victualer, over forty years of age, who suffers from severe spasmodic attacks of coughing whenever he attempts to prepare raw asparagus for the cook. He is arthritic and nervous. Twenty years ago he became a cook and remained so for a long time, but was temperate, and hence suffered little general ill health, except from slight anemia. From the first, however, he found that while trimming asparagus in the kitchen violent sneezing, coryza and running in the eyes set in. Within half an hour dyspnea followed, with cough and expectoration. All these symptoms used to vanish within an hour or two. Hence he managed to continue at work and rose to be chef in large hotels. But whenever he assisted the undercooks in dressing asparagus the fits returned worse than before. He now owns a restaurant. Last spring he helped his own cooks on a busy evening and plucked a few stalks of asparagus. The fits of asthma came on at once with unusual violence and he was ill for several days. There was free expectoration and much coryza troubled the patient for some time. Dr. Deschamps gave iodids and bromids, with morphin in infusions of senega, cocain and borax lozenges and inhalations of steaming solutions of marshmallow and poppy. Neither fever nor albuminuria was observed. The increase of intolerance of asparagus is remarkable, as the patient is better off in every respect than he was twenty years since, prosperous, contented and strong. He can peel onions, carrots, turnips and other roots with perfect com-

fort, but after plucking a considerable amount of salsify, mild sneezing and coryza set in, but without dyspnea. He has all along been able to eat asparagus freely, as the meal is never followed by any of the troublesome symptoms. Dr. Deschamps dwells on hay asthma, and states that he has seen a marked case of ipecacuanha asthma, a disorder, as has been said, noted by other observers.—*British Medical Journal.*

The Doctrine of Leprosy and its Treatment.—Dr. E. Baelz of Tokyo (*Berliner Klin. Woch.*, 1897, Nos. 46 and 47), in regard to the transmissibility of leprosy, admits the possibility of contagion, but thinks that there must be a very intimate and long-continued intercourse; he lays special emphasis upon the fact that the disposition to leprosy is very sporadic. He does not think that the proofs offered by Blaschke, for the inoculation of Eastern Prussia by Russia, are sufficient; he combats the opinion that there is an immunity of Europeans, produced by former saturation, and now on the wane. The cause of the small degree of contagiousness is to be found in the fact that the greatest number of lepers are free from ulcerous processes, that therefore the bacilli are under the protecting cutaneous cover; there are, moreover, reasons for assuming that most bacilli degenerate in the ulcers. In regard to the spreading of leprosy in the body, the author assumes that there is first a latent focus somewhere, that it breaks into the vascular system and that then the germs are carried abroad. The author, among the various symptoms of leprosy, calls particular attention to a peculiar wax-like glitter of the skin. He considers the thickening of the nerve stems as one of the most important symptoms; in this respect, the nervus auricularis magnus, which may swell to the thickness of a lead pencil, is especially remarkable. The tendon reflexes were frequently found, by the author, strikingly exaggerated. As a diagnostic help the behavior of the leprous maculæ to anilin rubbing-in may be of advantage; if a body is rubbed with a powder of fuchsin, methyl-violet, then covered closely with absorbent cotton, and if pilocarpin is injected into the patient, then the sound perspiring skin was colored, but not the leprous non-perspiring places. The author can not admit that lepra is independent of climate. Thus he found, in Japan, that fever and general symptoms were often absent; pain on pressure over the nerves was only observed in very rare cases; just as rare were diseased mucous membranes of the mouth, of the nose and of the rim of the larynx and skin ulcers. Also, the author can not admit a peculiar vulnerability of the leprous parts and that leprosy as such leads to cachexia. Lepra mutilans arises, according to the author, usually not through ulcerous processes, but through a simple resorption of tissues. In regard to therapy he mentions favorable results obtained by him by a combination of: 1. Local treatment with salve of salicylic acid, applied in a peculiar manner; 2, of very large doses of oleum gynocardiæ; 3, of strong baths inflaming the skin. The salicylic acid is used as 20 per cent. salicylic acid—lanolin—vaselin, at the diseased places which have previously been rubbed with pumice stone. The gynocardia oil is administered in doses of 15 grams a day. The bathing treatment consists in the use of the hot springs of Kusatzu, which are distinguished by a very strong content of free mineral acids. In a full bath of 200 liters there are 440 grams of free mineral acid, 230 grams of sulphurated earths, 45 grams of sulphatic iron. Add to this a temperature of 45-53 C. Of these baths the patient takes three a day and then five for the period of a whole month or longer.

PRACTICAL NOTES.

Rheumatic Origin of Chorea.—Moncorvo considers chorea the cerebro-medullary manifestation of rheumatic infection developed in a hysteric or neurasthenic organism. He has found antipyrin, exalgin, asaprol and analgen, derivatives of the aromatic series known to affect rheumatic infection favorably, very effective in permanently curing a large number of cases of chorea. His last eight cases were cured in eighteen to forty-five days with 3 to 8 grams of analgen in twenty-four hours.—*Bulletin de l'Acad. de Méd.*, May 17.

Electuary for Gouty Rheumatism.—(G. Baccelli). Sodium salicylate, 30 grams; sodium nitrate and potassium iodid, āā 20 grams; colchicum oxymel, 100 grams; rob of lappa, 300 grams. F. s. a. A tablespoon morning and night in half a glass of alkaline water. Continue for forty days.

An Objective Tone-Measure is suggested by Panse, by determining the amplitude at the moment when the sound of the tuning-fork becomes inaudible. Personal tests with a number of forks of different makes resulted in almost identical figures.—*Münch. med. Woch.*, May 17.

Serotherapy in Rheumatic Iritis.—Boucheron has found Marmorek's antistreptococcus serum remarkably effective in fifty cases of rheumatic iritis. He considers it a valuable tonic for the nervous system besides its specific action. Small doses are best: half to one cubic centimeter a day. Fresh, acute cases are most rapidly affected.—French Congress of Ophthalmology.

Syphilitic Lesions in the Stomach are more frequent than generally supposed. They simulate clinically simple ulcer and exulceration, the secretions keeping up the morbid processes, from possibly a slight erosion, but they can be cured without surgical intervention, hence every case of ulceration should be investigated for syphilitic antecedents.—*Gaz. Méd. de Paris*, May 21.

Collodium in the Treatment of Pruritus Analis and Hemorrhoids.—According to Samways, painting the anus with collodium will cure the pruritus completely in twelve to fourteen hours, and also tend to reduce the size of external hemorrhoids if applied on a tampon. The one disadvantage is a sharp burning sensation for a moment, which can be obviated by painting with cocain beforehand.—*Memorabilien*, May 7.

Traumatic Hepatoptosis has been rarely observed. It may occasion chronic peritonitis from compression or disturbances in the alimentary canal: meteorism, colic, fever from intestinal intoxication, etc., or even lesions in remote organs from the habitual coprostasis, such as cerebral hemorrhage. Hepatorrhaphy is indicated in recent cases, but if of long standing, palliative treatment is all that promises relief.—*Gazz. degli Osp. e delle Clin.*, May 22.

Nitrate of Silver in Acute Lobar Pneumonia.—Eight cases have been reported recently in Italy, all treated and promptly cured with five to fifteen centigrams of nitrate of silver in ten pills a day, decreasing to two-thirds the amount after the fever subsided, which occurred almost at once. The crisis appeared the second day, with complete recovery in five to twenty-five days.—*Gazetta degli Osp. e delle Clin.*, May 22.

Stimulation of the Lacteal Secretion by Abdominal Massage is urgently recommended by M. Schein, who has found it very effective in several cases of absent or defective secretion. The blood is to be coaxed away from the uterus to the breasts, and the manipulations proceed on the assumption of important anastomoses between the genital organs and the mammæ.—*Wien. klin. Woch.*, No. 18.

Menthoxol, Camphoroxol and Naphthoxol are obtained by adding to a 3 per cent. oxygenated water, 1 per cent. menthol or camphor, or 2 per cent. naphthol. Camphoroxol requires 32 per cent. alcohol to dissolve it; the two others require 38 per cent. The three, undiluted, destroy the spores of malignant anthrax in three hours. Wagner recommends them highly after using them on 200 surgical cases in a 10 per cent. solution. The wounds healed rapidly and healthy granulations were hastened. The deodorizing properties of the oxols with their own pleasant odor, are special points in their favor.—*Therap. Woch.*, 1897, 48.

Orthoform in Gynecology.—Blondel has cured a number of cases of endometritis with laminaria soaked a week in ether saturated with orthoform. Fifty other cases were treated successfully with intra-uterine drainage with antiseptic gauze dipped in glycerin, holding orthoform in suspension, which

allowed them to pursue their usual occupations. The orthoform prevents any pain, and also renders the curettement of the uterus painless, if applied on gauze an hour before.—*Bull. de l'Acad. de Méd.*

Ratings for Damages.—In negligence suits for the benefit of the widow and next of kin, a different method of assessing the damages prevails in England from that which is usual in this country. An illustration of the difference is furnished by a case tried on February 15, before Lord Chief Justice Russell and a jury. It was an action by the widow of a sailor to recover damages for the death of her husband, who was a seaman upon a steamship belonging to the defendants, and was washed overboard in consequence of the improper manner in which a portion of the cargo was stowed on deck. Instead of awarding a lump sum, representing the injury sustained by all the family, as would be done in New York State, the jury assessed the damages at £200 for the widow and £100, £100, £60 and £40 for the four children respectively.—*N. Y. Sun.*

Intestinal Occlusion Due to Lumbricoids.—Dr. E. H. Bartley reports a case of intestinal obstruction due to lumbricoid worms, simulating appendicitis. On opening the abdomen a ball of intertwined lumbricoids was found in the ileum, resting against the ileocecal valve and completely occluding the opening. An attempt to force the worms through was without success. As the appendix was swollen, edematous and intensely congested, it was thought best to remove it. The ileum was then opened by a small incision and about forty worms removed with forceps. The incision was sutured and the abdominal cavity cleansed and completely closed. All went well for forty-eight hours; then sharp pain was complained of in the left leg, which became very cold; gangrene set in and seven days after the first operation an imperfect line of demarcation formed about four inches above the malleoli. Amputation was performed at the knee-joint and the child made a slow but perfect recovery.—*Archives of Pediatrics*, April.

Remarkable Success of Static Electricity in the treatment of tuberculosis is announced by N. M. Wassilieff, who reports a number of cases, cured for four years, which he considers a sufficient length of time to establish the merits of his new treatment. The patient sits on an insulated stool with rounded corners, connected with one of the conductors of the machine by a metal tube. The electrode is held at a distance of one to two centimeters from his mouth, the metal part connected with the floor or earth by means of a metal chain. The patient feels a slight movement in the air, and he inhales this electrified air for five or six minutes. At first he feels a dryness in lips and neck, followed by a sensation of warmth in mouth and throat, and occasionally a slight transient dizziness. If there is much debility, sparks also are induced over the chest, with a metal ball on a rubber handle, or with the finger. These electric air inhalations are supplemented by an abundant, strengthening diet and pure air, if possible the patient continuing his usual occupations. No secondary effects were observed in any case, even with advanced heart disease. The report in the *Klin. Therap. Woch.* of May 31 contains several typic observations of severe forms of the disease, with bacilli in the sputa, terminating in complete recovery to date. The shorter the duration of the disease, irrespective of the severity of the lesions, the more rapid the cure. He also reports thirty cases of non-tuberculous affections of the respiratory organs promptly cured with this treatment, catarrhal, chronic bronchitis, etc.

Antiseptic and Therapeutic Values of Chinosol.—According to the London *Lancet* for April 30, chinosol has been widely employed as a powerful and convenient antiseptic, and it is said to possess very distinct advantages over other antiseptic compounds previously in use. It is a yellow powder of definite chemic composition, soluble in water, and containing a quinolin group in combination with potassium and the sulphate radical. Its antiseptic, disinfectant, and deodorant properties have been determined with very satisfactory results by Dr. Klein. It is important next to turn its properties in practice, and on this important question Professor Hobday, of the Royal Veterinary College, has contributed an interesting and instructive paper to the March number of the *Journal of Comparative Pathology and Therapeutics*. His experiments related to dogs, cats and donkeys. The internal administration of chinosol to human subjects has been tried by Dr. Cipriani, whose results were recorded in that journal about five months ago. In this communication the treatment of tuberculosis with chinosol administered by the mouth or injected locally was followed by a rapid and apparently permanent improvement. The summary of Professor Hobday's results is as follows: 1. Chinosol acts well as an antiseptic, disinfectant, and deodorant when used in certain proportions. 2. Its action is better marked when used as a lotion than when used as a powder. 3. The powder is not suitable for use on fresh wounds unless diluted in some way or other. 4. For the disinfection of instruments care must be taken not to make the solution too concentrated. With instruments care must be taken, Professor Hobday finds, that the solution should be of the definite strength, as otherwise the instruments lose their edge and the handles become discolored and rough to the touch.

The Value of Green Vegetables and Levorotatory Sugars in the diet of diabetics is announced by Professor De Renzi, based on an "infinity of researches and observations," possibly the most important contribution to the cure of diabetes mellitus since Munson's articles in the JOURNAL (xxvii, pp. 872, 922 and 1072). He confirms Külz's statement that diabetics assimilate levulose easily and that the levorotatory sugars in general are much more easily burned in the organism than the dextrorotatories, and advocates green vegetables for food, as they contain a kind of starch which is transformed, not into dextrose, but into levorotatory sugar in the organism, and neutralizes the effects of meat and fat ingested. The sugar and acetone vanish from the urine, if green vegetables are eaten exclusively for a day or so, and prevent their appearance if combined with a mixed diet. He has even found that a diet of green vegetables will prevent glycosuria in dogs after removal of the pancreas, and cure it if it has already appeared. The vegetables may be boiled or eaten in salads; cabbage, chicory and endives were the most frequently used in his tests, but all are effective: lettuce, asparagus, spinach, cauliflower, etc., although he warns that green peas and beans must be very fresh and the daily amount not exceed one-fourth kilogram. In the severest "carnivorous" cases he restricts the diet to the green vegetables alone for two days, but then, and in "amylivorous" diabetes, allows a mixed regimen, including 100 grams green vegetables, 300 grams meat, 5 eggs and 500 grams red wine a day. No sweetening substance is permissible except levulose; saccharin, etc., are "foreign substances" and injurious. On account of the levorotatory sugar in fruit, this is also to be recommended in moderation. He has established the following daily limits for grave cases: Almonds, filberts, oranges, 500 grams net; mandarins, 4 to 8; pears and apples, one-fourth kilogram; plums, strawberries, 500 grams gross; peaches, apricots, 100 grams net; cherries, 200 grams gross. He ranks milk among the last substances to be allowed, although dishes cooked with milk are allowable in the first mixed diet. Diabetic patients, he adds, should take considerable active exercise. After ingesting a certain amount of carbohydrates they should take a walk, not a gentle stroll, but "with energy." Medication is worthless. Electricity exaggerates the decomposition of nuclein and causes sugar to appear in the urine. Mineral waters, massage, gymnastics are more useful, but the vegetable diet is the main thing, and it should be continued indefinitely and at least twice a year the patient should restrict himself almost exclusively to green vegetables alone for a few days.—*Gazzetta degli Osp. e delle Clin.*, June 5, 1898.

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SATURDAY, JULY 16, 1898.

STUDIES OF THE GANGLION CELLS AND THE CHANGES THAT OCCUR IN THEM IN GENERAL DISEASES AND OTHER CONDITIONS.

During the past few years observations have shown the marked superiority of the NISSL method of staining ganglion cells. Many claims have been made regarding the significance of the changes brought out by the new stain, but it has not yet been made possible to correctly interpret the variety of the changes revealed.

Dr. JAMES EWING [1] recently read a paper before the New York Pathological Society, in which he sets forth the results obtained by him in a systematic examination of the ganglion cells of the central nervous system in a series of cases representing a variety of conditions.

After having tested a large number of fixing agents recommended for the preservation of the structure of the ganglion cells, EWING finds no agent is probably superior to alcohol, in the strength of 95 per cent. or absolute, as originally recommended by NISSL. He finds the following simple procedure as good as any: Stain the sections for one or two minutes in a 1 per cent. aqueous solution of methylene blue, gently heated; wash in water; decolorize in absolute alcohol; clear in oil of cajuput, and mount in Canada balsam.

EWING concludes that the so-called chromatic substance in the human ganglion cells is invariably arranged in a network with nodular thickenings. In Purkinje's cells the chromatic threads are much thicker than in the cells of the spinal cord and cerebral cortex. There is a cytoplasm with acido-philic tendencies, in which it is thought there may occur important changes, the evidences of which, however, are not yet demonstrable by the present methods. Of the radiating rows of oxyphile granules, described by HELD in connection with the axis cylinder processes, EWING found only indistinct traces. In the thinnest specimens that could be secured this area appears granular, but the granules are usually distributed irregularly. The reticular part of the cell body is surrounded by a rim of finely granular oxyphilic cytoplasm, which has a very distinct and abrupt line of demarkation. This is best demonstrated in freshly teased specimens. In all probability the substance of the axis cylinder process fills in the meshes of the reticulum of the cell body, and if this be true then the oxyphilic cytoplasm furnishes the material which undergoes pigmentation and other degenerative changes, and then the essential lesions that lead to loss of function of the nerve cells are to be sought for, not in the chromatic reticulum, but in the cytoplasm. This conclusion has already been reached by HELD and by APATHY, working with an entirely different technical method.

As regards the postmortem changes, EWING found that the earliest ones consisted in a diffusion of the chromatin throughout the nucleus; in certain cases the nucleus was shriveled and irregular. The chromatic reticulum of the cell body may undergo a granular splitting up, so that the cell becomes uniformly granular; vacuolation is also a constant and sometimes prominent feature. Similar changes may affect the dendrites. No uniform sequence can be given for the occurrence of the postmortem changes.

EWING then examined ganglion cells from cases of pneumonia, typhoid fever, and a number of other infectious diseases; also from auto-intoxications such as uremia, eclampsia, diabetic coma, sunstroke, from cases of acute poisoning by alcohol, morphin, carbolic acid and hydrochloric acid, and in a number of miscellaneous instances, including disturbances of the cerebral circulation, such as thrombosis and hemorrhage.

From these observations it is learned that virulent toxins may not cause any changes in the nerve cells demonstrable by NISSL's method, that the chromatic reticulum is comparatively resistent to the action of many bacterial poisons. In some cases of rapid septicemia, experimentally produced in the rabbit, bacilli were found in the interior of the ganglion cells, which nevertheless showed only slight evidences of degeneration. It is thought that any changes that may occur are not so much due to the direct action of the circulating toxins, as to the loss of function in the cell processes or to loss of blood supply in minute foci. The intermediate lesions may be referred to local circulatory disturbances, such as edema, capillary hemorrhages, thrombosis, obstructions to the lymph cir-

[1] Studies from the Department of Pathology of College of Physicians and Surgeons, N. Y., Vol. v, 2, 1898.

culation, and lesions in the nerve trunks. In those cases in which there had been extreme dyspnea and cardiac weakness before death the medullary nuclei, especially the tenth and the "nucleus ambiguus," suffered more than others, and these and related observations would seem to point to the possible influence of over-action and fatigue in determining the lesions in the ganglion cells. In such diseases as hydrophobia extreme and wide-spread lesions affecting all parts of the cells occurred. Chemical poisoning may abolish nervous function without many demonstrable changes in the nerve cells. When the action of the poison is prolonged at least twelve hours, however, changes may be produced in the chromophilic substance, as would indeed be expected from the experimental study of the effect of various poisons upon animals.

In the acute lesions it concerns a process of chromatolysis, which may be of the same character in various groups of cases, although distinct stages may present different appearances. When the lesions are ascribable to local anemia the changes consist of a uniform granular appearance of the chromatic substance, which may be fine or coarse, depending upon the stage of the process, all ending in the same complete loss of nodal thickenings with more or less preservation of the reticulum.

Among the changes in the nucleus those of the nucleolus are to be mentioned. The nuclear network may be granular and irregular or entirely absent. Vacuoles and granules may occur in the cytoplasm.

EWING found that there was no specific features in the appearance of the cells in the fatal cases of alcoholism, tetanus, and thrombosis of the basilar artery; the principal occurrence was chromatolysis. This process may occur without distinct change in the nucleus. EWING believes that further degeneration frequently occurs after chromatolysis is complete, because there may be entire absence of changes in the nucleus in the cells with preservation of the reticulum of the cell body, with functional activity, as can be demonstrated in over-heated rabbits. EWING has repeated the experiment of GOLDSCHEIDER and FLATAU of subjecting rabbits to high temperatures, and he has found that the chromatophilic bodies of the anterior horn cells may be largely obliterated, and yet the rabbits may be running actively about the laboratory.

He concludes, first, that the chromatic substance of the nerve cell is more susceptible to the influence of disturbed circulation than to the action of virulent bacterial toxins.

Second, that LEVI's observation is of great significance, if this can be verified, namely, that during hibernation chromophilic bodies disappear.

Third, that the relation of the chromatic substance to the activity of the cell still remains a matter of conjecture.

Fourth, that in the premature, and even in the full-term infant, chromophilic bodies have been found to be absent or but imperfectly developed.

Fifth, that chromophilic substance of the ganglion cells probably represents a state of physiologic nutrition, which may vary between the full development of such bodies to their complete absence as in the motor cells of hibernating animals.

Sixth, that while the chromatic substance of the ganglion cells may be much diminished without real degeneration of necessity being present, yet it is certain that acute degeneration of the ganglion cells is usually evidenced by various forms of solution of the chromatic substance.

It seems we are still far from a systematized knowledge of the real pathologic histology of the ganglion cells. The impression is gained from EWING's study that until it becomes possible to demonstrate the delicate morphologic or chemic changes in the cytoplasm and the intermediate substance of the cell, the key to this branch of pathology will not be grasped.

OUR INSPECTION OF SPANISH HOSPITALS IN CUBA.

While making a brief inspection of the general hospitals in the Province of Santiago, Cuba, we were so much impressed with the excellence of the management, the fine discipline and the care manifested in the details of treatment that we can not refrain from publicly testifying to the efficiency of our medical brethren in the service of Spain. Our inspection was made through the medium of certain reports and returns which, instead of being in the hands of *Excmo. Sr. Inspector de Sanidad Militar de la Isla de Cuba, Habana*, to whom they were forwarded in accordance with Army Regulations, are now by the fortune of war, on file in the War Department of the United States, Washington, D. C. From these we learn that the general hospital at Holguin, the Military Headquarters of the Province, is one of considerable size, having a capacity of probably 1500 beds, for there are fifteen ward prescription books, 12 medical, 1 surgical and 1 for *Senores Officiales* or commissioned officers, and some of these wards as shown by the series of prescriptions have as many as 112 beds. The average daily occupancy of the hospital during the month of December 1897, was 700 patients. All the reports and papers examined were intended to be rendered on printed forms, but it is manifestly an understood thing in the Spanish medical service that the absence of blanks does not constitute a valid excuse for failure to make reports, as several of the complicated forms were ruled by hand. All were written with the utmost care to insure legibility, with the exception of the signatures of the medical officers, which are generally illegible although written with care and with elaborate flourishes above, beneath or around, as an integral part of each. These intricate pen-traced additions to the sign manual were

no doubt intended to give dignity and individuality, but to the practical common sense of the average American they are schoolboyish in the extreme. All are free from blots or erasures, and are clean, if we except the ward prescription books, which bear evidence in finger markings and other excusable soils of having been carried from bed to bed and thence to the dispensary. All the forms are printed in single sheets, those used during the month being stitched together in a printed or hand-lettered cover to constitute the report for that period.

The *libreta*, or prescription book, of each ward shows the quantity of each medicine prescribed for each patient at the morning and evening visits, and the entries of each visit are closed and certified to by the signature of the chief of the clinic. These entries are of interest as throwing light on the character of the cases and the treatment adopted by the officers in charge of the various wards. An extensive materia medica is employed, over three hundred different preparations having been prescribed during the month. Quinin in various forms, antipyrin, jaborandi and limonada vegetal occur with great frequency. Sulphate of quinin is usually written sulfo. qq[a]. *Leche de vaca*, or cow's milk, appears in prescription as a medicament. The summing up of the quantities prescribed daily in the wards acts as a check on the pharmacist who renders a report at the end of the month of the quantities, and cost of each article sent out of the dispensary. The cost of the medicines used in all the wards during the month of February 1898, amounted to $2,998.35. Wine of quinia was the costliest item, 977 kilos costing $655.95. Among others we may cite wine of quinia and iron 197 kilos, $109.88; disulphate of quinia 8529 grams, $290.83; valerianate of quinia 1308 grams, $46.04; limonada vegetal 790 kilos, $28.48; acetate of lead 40 grams, 1 cent.

The next paper examined was a report of the official remedies compounded in the pharmacy, thus accounting for the constituents employed, as of sugar transformed into syrups and of alcohol into tinctures, etc., all of which have afterward to be taken up and accounted for. One would think this a satisfactory system of responsibility and accountability without a report showing the quantities of remedial substances, simple and compound, consumed on each day of the month. Nevertheless, such a report is rendered as corroborative of the totals for the month when verified by the daily prescriptions.

The next report examined was one, forwarded in triplicate, of articles purchased for the subsistence of the patients during the month of November 1897. It gives the name and address of the person from whom each purchase was made and the items, with certificates as to the current market price. The expenditures for the month amounted to $24,819.52. Some of the items and prices may be of interest: 7700 kilos of fresh beef at 87 cents per kilo, the heaviest item in the bill, $6,699.00; 1600 kilos of chicken at $1.25; 228 kilos of coffee at $1.10; 4125 kilos of milk at 43 cents; 5470 eggs at 10 cents each; 3750 liters vino tinto at 25 cents, and 513 liters vino generoso at $1.65. Another report in duplicate gives, classified by regiments, the name, company and rank of each patient, with date of entry into and discharge from the hospital, to show the claim of the hospital for subsistence and for an allowance for tobacco at the rate of 40 cents per man per month.

We examined also some annual reports from the General Hospital at Gibara, which is a seaport on the northern coast, about 20 miles from Holguin, all of which showed the same precision in matters of detail. This hospital is much smaller than the other, as its average number of occupied beds was only 100. Lastly, from the General Hospital at Puerto Padre, we found a series of reports purely medical giving all the cases under disease headings for the year 1897. Puerto Padre is on the north coast west of Gibara, and about 40 miles northeast of Holguin. These reports give all the items of information called for by our United States Regulations; name, rank, company, corps, age, nativity, occupation, dates of entry into service, of the beginning of the sickness, of admission into hospital, of discharge from hospital, cured, dead or invalided to Spain, and the number of days stay in hospital under treatment. Thus, under the heading of *Paludismo*, there are recorded 1726 cases, of which only 1 proved fatal; of *Fièvre amarilla* 64 cases, 26 fatal. The latter disease began in August, and was in full progress on Dec. 31, 1897, when the report closed. On the sheets for typhoid fever, pneumonia, tuberculosis, smallpox, venereal disease and syphilis, there is only the remark *Ninguno*, equivalent to "no case admitted during the year."

Whatever may be our views of Spain from our present inimical standpoint, we must confess that the glimpse we have obtained of Spanish medical methods as practiced in the hitherto obscure outposts of Holguin, Gibara and Puerto Padre, has given us a high opinion of the Medical Department of the Spanish Army.

THE NEWS FROM THE FRONT.

No formal report has been received at the office of the Surgeon-General of the Army from Chief Surgeon POPE of the 5th Army Corps at Santiago, Cuba, but some idea of the work accomplished by the medical department of that corps may be gathered from the Associated Press and other dispatches from the front. The health of the troops on the voyage from Tampa, Florida, was excellent, only 1 per cent. having been sick. After landing at the Juragua wharf and getting into position on Cuban soil the first excitement in medical circles was occasioned by the dash of the dismounted Rough Riders and Regular Cavalry, June 24 at La Guasima, in which Major FRENCH, surgeon

of the former, was reported as having distinguished himself by bringing in a wounded man from between the lines. The hospital corps detachment did its duty handsomely, collecting the wounded at the first aid stations whence they were moved by litter to the landing. Most of them were immediately transferred to the *Olivette*, which had acted as a field hospital for the corps during its voyage. All necessary operations and dressings were completed before 3 A.M. of the 25th. The main saloon was converted into an operating room, where the work was done by electric light.

After this several days were passed in making the needful arrangements for the attack on El Caney and the hill of San Juan, which took place on June 30 and was continued on Friday and Saturday, July 1 and 2. Here the losses were at first estimated at 400, but later despatches from General SHAFTER stated that an underestimate had been made and that they would probably mount up to 1000; and still later press despatches indicated about 1800 as the number, a very heavy loss considering the small number engaged. Concerning Friday's fight it was said that the greatest care and attention were bestowed upon the wounded men. The hospital of the 2nd division was established on the field as was also that of General WHEELER'S Cavalry Division, Major VALERY HAVARD, Chief Surgeon. The hospital of the 1st division was a short distance west of General SHAFTER'S headquarters. The ambulance companies proved very efficient and no wounded men remained on the field after dark. The cases were so numerous that the hospital canvas was insufficient to shelter them. Those coming in later had to be placed on the ground under palm trees in close proximity to the tents. Surgeons and nurses worked unceasingly for forty-eight hours to attend to them and prepare them for transportation to the landing. Medical officers from the fleet assisted the over-worked surgeons of the corps in their labors. Many of the wounded found their way to the base hospital, for one despatch says: The provisional hospital at Siboney received a large number of men who all night long loitered along the road from the front as best they could. Wagons conveyed many, but others preferred walking, and throughout the night the road was filled with the wounded who moved slowly along the path leading to the sea coast.

Attention has been called to two points, first, the small number of cases requiring amputation, and second, the small number of deaths among so many wounded men, and this latter notwithstanding the references made to the ghastly wounds caused by the brass jacketed Mauser bullet. Among the deaths was that of Acting-Assistant Surgeon DANFORTH of Milwaukee, Wis., who was attached to the 9th cavalry. Dr. DANFORTH is said to have been picked off by sharpshooters while attending to wounded men on the road to the rear. Several members of the hospital corps were wounded also in this way.

The division hospitals were amply supplied with field dressings and supplies, but on account of the unexpectedly large number of wounded the stock of hospital shirts, drawers, blankets, etc., ran short. Ordinarily in going into a fight soldiers throw away all their impedimenta or stack them in rear of their line of battle, so that blankets and knapsacks or blanket rolls containing spare shirts, drawers, etc., can be picked up anywhere, and as a matter of fact are picked up by the hospital corps men to be brought to the hospital with the wounded to eke out the hospital supplies; but as Dr. POPE had to telegraph his shortage of these we must suppose that clothing rolls thus thrown away by our troops in the recent battle must have been considered as treasure trove by our Cuban allies. Outside of these things the field hospitals lacked nothing, although we find two or three telegrams from Miss BARTON suggesting the amount of suffering assuaged by her efforts at the base hospital at Siboney. In one some elation is manifested at being under the direct fire of the Spanish sharpshooters, but it is not stated that this reckless exposure really took place during the truce. The work of the Red Cross has been mainly that of providing supplies from the *Texas* to the starving Cubans.

Ultimately as the operations were performed and the wounds dressed the wounded men were shipped off through the surf to the transports, the first of which, the *Iroquois*, arrived at Key West, Florida, July 5, with 320 sick and wounded. These, with the patients already there, fill all the accommodations at that place so that future arrivals will be landed at Tampa, where the hospital train is on duty. Meanwhile the Hospital Steamer *Relief* arrived at the front with ample supplies and a reinforcement of about thirty medical officers, among them Prof. NICHOLAS SENN. This handsome vessel has cot accommodation for 350 patients in the wards, and in case of necessity the hurricane deck may also be utilized for ward purposes. Full descriptions of the outfit of this ship have been given in most of the daily papers, including her baths, electric fans, search light and Roentgen ray apparatus, disinfecting chambers, refrigerating rooms, stills and carbonating machine.

CUMBERING THE RECORD.

The *Index Medicus* is a valuable publication that has as a special type and example of American medical journalism done credit to our country. It has also, in its complete bibliography of medical literature, introduced at least the knowledge of the existence of such a literature in this country into various quarters where it had been hitherto consciously or unconsciously ignored, and if at the present time there still exist those who consider American medicine still in its infantile swaddling clothes, we can, with the exercise of all needed charity, attribute such opinion to abnormal mental idiosyncrasy rendering them blind to facts.

to a wilfully maintained provincialism and prejudice. When all the world has to come to America to keep track of what is being done in medical publication, any wholesale disparagement of American medical progress comes with ill grace.

There is, however, a point of view from which there is perhaps some reason for criticism of American medical literature. No other country has such a multitude of medical serials, good and indifferent; and some of them, it is to be feared, falling under the category that is commonly sandwiched in between these two. It is not necessary to say what ones these are, and the reader may, if he so inclines, apply the suppressed adjective to any of the irregular publications that comes to mind. It is clearly impossible that all of these multitudinous publications can be kept at a high scientific standard, and equally so that their reason for existence can be the local demand for a high grade medical publication. Some few of them, and those often not the best, are financial successes, sources of income to their publishers, but this is sometimes the result of catering to a low taste in medical reading, filling up their pages with recipes and answers to correspondents whose ignorance indicates the type of their constituents, or they perhaps are trade journals issued in connection with some drug or medical supply house which with its facilities for advertising finds way to make them remunerative. A large number of the minor medical journals must of necessity make little more than their expenses, and this is sometimes considered as done by the addition of the subscription cost of their more valuable exchanges to the sum of the receipts. They are advertisements for their editors and sources of additions to their libraries, and while most of them are eminently respectable if not otherwise remarkable in their editorial conduct, their multiplicity and the stamp of provincial mediocrity set by a few of their number, and in a measure, upon the whole, has worked to the disadvantage of the reputation of American medical journalism. This is probably less true at the present time than in times past, and it may be said that when these serials really serve a useful purpose they do so by keeping up interest in medical matters by serving as the organs of local societies, and that they really are an indication of medical progress rather than of any unfavorable tendencies in the profession. This is certainly true to a large extent, but it does not do away with the fact that the same amount of energy, intellect and financial outlay, combined on a smaller number of publications, would have better results. It would certainly in that case do us more credit, for while there are European medical journals of no greater merits, they are not so numerous as a class, and are not accepted as setting the type of the medical literature as those in this country have been too often by foreign observers. The Chauvinistic European judges all by the worst and weakest, and in this he is very apt to be followed by his imitators and admirers on this side of the Atlantic. The real merits of our minor medical publications are likely to be ignored for the single reason of their multiplicity.

The greatest evils, however, that we can attribute to this proliferation of medical journalism, are to be looked for in the overloading of our medical bibliography thus produced. It is clearly impossible for each and every local medical journal to keep itself filled with really valuable original articles, and were it so it would be hardly desirable. Many of them are ephemeral publications; their files are not to be found complete in any medical library, except it may be that of the Surgeon-General's office, and valuable matter contained in them would be practically lost to the world, at least so far as the possibility of original reference is concerned. This is in fact too much the case, and the remedy is not apparent under existing conditions.

Another evil which these so numerous medical journals favor, and one that also needlessly cumbers up our medical literature, is the custom that many reputable and prominent medical writers have of utilizing them for the republication in duplicate, triplicate or even quadruplicate of their articles. It gives their views and discoveries a wider public, it is true, but it would be better if this were attained by a more extensive circulation of a lesser number of journals. As it is, it is confusing to anyone engaged in medical research, and all the more so if, as is sometimes the case, the articles while practically the same are published in slightly modified form and with changes in the title. The *Index Medicus* is sometimes therefore on embarrassing guide in looking up the literature of a subject by reason of this undue cumbering of the record.

It is not to be understood from the above that any wholesale condemnation of the over-numerous medical journals of this country is intended. The fact that there are so many of them, however, weakens their influence collectively and individually, and the standing of American medical journalism suffers in the estimation of some whose judgment may not always be correct but yet has its effect. There are also some, it must be admitted, that are not exactly creditable representatives of their class and by the too common synecdochal method of certain critics they are considered as typical of the whole. In addition to this we have by reason of their existence the occasional practical loss to the world of valuable contributions and still more often the needless overloading of medical bibliography with titles duplicate or otherwise that will be forever practically inaccessible for original reference to the mass of scientific workers in medicine.

According to the *Index Catalogue* and the *Index Medicus* our country leads the world in medical bibliography. It is unfortunate that it also embarrasses it to so great an extent.

FURLOUGH THE CONVALESCENTS.

During the later years of the Civil War, it was found that our convalescent sick and wounded recovered faster when sent home on furlough, than when retained in hospital or convalescent camp.

Not only was the ever present element of home sickness eliminated by this practice, but the over burdened Medical Department was relieved of much care.

It is hoped that this practice may be renewed in case of our gallant Volunteers in this War.

CORRESPONDENCE.

What is to be Expected from the Surgical Treatment of Tubercular Lungs?

CHICAGO, July, 1898.

To the Editor:—In consequence of the surprising declaration of Dr. Murphy, that tuberculosis of the lungs can be cured by injections of nitrogen gas into the pleural cavity, the question arises, what may we expect of this measure, setting aside all the difficulties arising by impossible diagnosis of adhesions, which would in some cases make the injections inefficient. We will only consider cases in which the method would effect a total compression of the diseased lung. What will be the consequence of such a state, so far as known by pathologic observation?

1. It may be remarked that we know such cases, in which a healthy or emphysematous lung is compressed by rupture of some air cells, mostly in the place of a circumscribed adhesion of the pulmonary surface to the costal pleura. In general such traumatic pneumothorax heals without any difficulty.

2. If a tuberculous lung is collapsed by pneumothorax, occasioned by a rupture of its surface, mostly by infection of the pleural cavity by the contents of the ruptured parts, a pyopneumothorax is the consequence. But in many instances, this resulting pleuritic effusion may be very slight or totally deficient. The rupture heals and we have a simple pneumothorax, not very different from the artificial process proposed by the bold operator. These forms of pneumothorax can subsist very long in tuberculous patients. Is it observed anywhere, that under these circumstances the tuberculosis of the collapsed lung is healed or at least reduced? This question can only be answered by observation. So far as I can remember, I have never seen any signs of reduction of a simple or suppurative tuberculosis under such compression. The peribronchial knots, which are lying superficial, are protruding over the surface of the compressed parts and will not be reduced by exclusion of the air in the adjacent air cells. On the other hand, ulcerations of the bronchi or tubercular deposits in the walls of a cavity in the apex or elsewhere in the lungs, will not be under different conditions than they are in a respiring organ. Bronchi with cartilaginous walls and cavities with fibrous surroundings can not collapse, and will receive the same or a somewhat smaller quantity of air in respiration. The air included in these cavities may become somewhat richer in carbonic acid and poorer in oxygen, but this does not seem to be a healing factor, because quite the same composition of air will arise in every badly ventilated apex of the lungs. The proposition of Hanau is generally accepted, that the apex of the lung becomes the prominent seat of tubercular infiltration by insufficient ventilation, there being a normal condition and in a much higher degree in such persons with abdominal respiration. Every physician treating tubercular patients institutes regular gymnastics in such cases to promote deep inspirations and prolonged expirations under higher pressure. If a change of respiration takes place in such cavities with solid walls in consequence of an artificial pneumothorax, it will endanger these parts and prevent healing of the tubercular process contained in them.

The artificial pneumothorax may influence the course of tuberculous processes favorably only in one respect by lessening the expectoration retained in cavities or bronchi. It may be that in this way also the spreading of tuberculosis into the inferior parts of the lung may be impeded, certainly for a short time and not definitely. Dr. Murphy is to be credited that coughing patients can sleep undisturbed by cough after the institution of the artificial pneumothorax, but it is questionable whether tubercle bacilli will die in the retained sputum and pus. At any rate, the surgeon would not consider such a retention of pathogenic organisms as helpful. On the contrary, we always search to eliminate such organisms and dying or dead cellular material. That tubercle bacilli and cocci will not die in such masses of pus, mucous matters and polynuclear leucocytes is shown by the vegetation of these organisms in the caseous tuberculous infiltrations. The destruction of these organisms is effected by certain forms of leucocytes, named macrophages by Metchnikoff, and we are glad if we can promote their appearance in the sputum, because their presence denotes the first sign of beginning salutary reaction of the body. I demonstrate this often to my pupils in the tuberculocidin treatment. This salutary change is directly hindered by the artificial pneumothorax, promoting not only atelectasis of the air cells, but effecting also anemia. The elastic tissue of the lungs absolutely closes all small vessels, if it retracts by the pressure of the injected nitrogen gas.

All clinical experience demonstrates that anemic condition of the tissues, and particularly in the lungs, is favorable to the development of tuberculous processes, if such germs are present. So Traube has shown that stenosis of the pulmonary artery is followed mostly by tuberculous lung affections. The same is the case in deformities of the chest, impeding the movements of the chest wall, as in lordosis and scoliosis of the spine. The process always commences on the side where the thorax is contracted. The flat chest, so often present in hereditary forms of tuberculosis, promotes the development of the disease in the apices of the lungs and hinders the process of healing. The same effect is produced by a weak heart, so often accompanying this malformation of the chest. Congenital aplasia of the aorta promotes anemia (Virchow) and later frequently leads to tuberculosis.

We observe quite the contrary in a state of increased blood pressure, as in well compensated cases of valvular destruction of the left side of the heart. After the first observation of Traube, who considered this condition as favorable in tuberculosis, I have during the past thirty years observed many cases of involvement of lung tuberculosis under this condition, but I know also, that if the compensation is destroyed, as it occurs often in advanced age, the old repressed tuberculous process can break out again, mostly in the form of tubercular pleuritis, the lungs being saved more as the pleura by the direct flow of the blood to them through the pulmonary artery, whereas the weakened left heart ceases to impart enough pressure to the arteries of the body. This fact, the limitation of tuberculous development under the effect of higher venous pressure, has been practically demonstrated in the treatment of tubercular knee joints, by Bier, a pupil of Esmarch. This treatment, by the way, will only be effectual if the stagnation of blood is very limited, because higher degrees of venous stagnation impede the emigration of leucocytes (Cohnheim).

If one were to try to produce the most favorable condition of circulation in tuberculosis, by physical means, one should institute artificial destruction of one aortic valve, which I have first shown in dogs to be a very harmless operation, but I would not counsel its performance in men.

In Dr. Murphy's experiments with tuberculous individuals the higher blood pressure in the not operated lung can be favorable, but the effect will only be temporary, and dangers will not be excluded, such as ruptures and bleedings from the single respiring lung, which then has to sustain a higher pressure of circulation and respiration.

From all this I must conclude that the proposed treatment of tuberculosis of the lungs by an artificial pneumothorax can not be supported in any way by our present knowledge, but we may quietly expect farther communications from the side of the bold surgeon.

The question of partial or total extirpation of one lung, also developed in the short theses of Dr. Murphy, is one of the gravest problems of modern surgery and we must be very well satisfied that Dr. Murphy, as it seems, has vanquished many difficulties. But we must say, also, that the indications for these operations will only arise if the progressive tuberculous process has entirely subsided. Large cavities filled with non-tuberculous pus or extensive fibrosis with numerous small cavities would give good opportunities for such operations. Certainly it would be a very great progress in our science, if the surgical art would give us the opportunity of inspecting the diseased lung in the same safe manner as we can now do the organs of the abdomen. EDWIN KLEBS, M.D.

Melancholy in a Leper.

NEW YORK, June 6, 1898.

To the Editor:—Some time ago you published a letter of Dr. Hansen, in which he took occasion to assert that there is no such thing as *melancholy of a leper*. He said, with Norwegian urbanity, that the melancholy in question was an invention of Dr. Ashmead. Will you kindly publish, for the enlargement of the knowledge of this gentleman in matters of leprosy, the following case, reported by Professor Meschedes, Königsberg, Prussia. It is really too bad that Dr. Hansen, probably on the strength of his bacillary discovery, should have come to the conviction that in matters of leprosy, when he speaks the universe ought to listen with entire submission.

The gentleman from Norway preserved through the Conference of Berlin an attitude which is entirely in accord with such a conviction. ALBERT S. ASHMEAD, M.D.

From a Report of Dr. Schlessinger of Vienna, Section of Neurology, International Medical Congress, Moscow, August 19 to 26, 1897.

Professor Meschedes: "I consider that leprosy exerts a direct influence on the development of dementia, the cerebral phenomena resulting possibly from some irritating lesions of the nervous system brought on by their toxins. I base this theory on a case of psychosis with which I have recently met in a leper. The patient, a man of 28 showed the first symptoms of leprosy in 1891. In December, 1896, without any obvious cause, he was suddenly attacked with symptoms of acute dementia which necessitated his admission into my wards. He was discharged in four and one-half months, having recovered from his mental affection, and was transferred to the medical wards to receive treatment for the leprosy itself. After a short initial period of melancholia, during which the patient refused to take food, hallucinations of all the sense organs suddenly developed, with excitement, oppression, intense motor discharges and delirious ideas of a religious nature. After a few remissions and an attack of megalomania, the mental phenomena gradually improved and finally disappeared entirely.

"We may note as constituting the peculiarities of this case, sudden explosive onset of the mental trouble and also the existence during the initial period, of evident symptoms of cerebral and cutaneous congestion. The skin of the face was particularly red and swollen, and the cutaneous sensation evidently constituted the main starting point of the hallucinations. The patient fancied that he was being tortured; he felt a sensation of heat which he himself estimated to have been fourteen times higher than the normal body heat; there also existed a state of sexual excitement of unusual intensity and a disturbance of the muscular sense, which gave him the impression that his whole body was being lifted. The congested state of the skin subsided on parallel lines with the retrogression of the psychic disorders. The last hallucinations of the period of decline also manifested themselves in the sphere of cutaneous sensations; the patient had the impression that snakes were creeping round his legs.

"The predominance of tactile hallucinations, pleads, in my opinion, in favor of the hypothesis of a *direct action* of the leprosy bacilli on the nervous system.

"I may add that one of the patient's brothers had also suffered from dementia. No other member of the family had ever exhibited any psychic disorders, so that there can be no question in the case of an hereditary psychopathia, properly so-called, but a simple family predisposition to mental trouble. The question might also be asked whether the attack of dementia was not due in the case of the brother, to some *latent leprous infection.*"

Removal of Foreign Body from Trachea.

DENVER, COLO., June 26, 1898.

To the Editor:—As I am under obligations to some of the members of the AMERICAN MEDICAL ASSOCIATION to report to them the progress and final results of the following case, I would like very much, with your permission, to use THE JOURNAL as a medium through which to reach those who became interested in the case during their attendance at the AMERICAN MEDICAL ASSOCIATION here in Denver.

History of case.—I was called May 8, 1898, to see George S., aged 12 years, and found him with temperature of 103 degrees, rapid breathing and a hacking cough, with occasional paroxysms of severe coughing, which would leave him almost exhausted. The mother informed me that he had swallowed a pin on May 25, 1898, and that he had coughed very hard ever since that date. By physical examination the presence of a pin in the left bronchus was diagnosticated by the entire absence of aspiration sounds over the entire left lung and the sibilant sound heard near the bifurcation over the left bronchial tube. I decided that in place of swallowing the pin he had sucked it into the treachea and from there into the left bronchus, and advised an operation for its removal, but it was June 13 before I could get permission, on which date I performed inferior tracheotomy and found the point of the pin at the bifurcation and the head in the left bronchial tube. The pin was seized and removed by a long forceps. The head of the pin was covered with a thick muco-purulent matter which formed a plug that completely obstructed the bronchial tube. On removing the plug a free discharge of pus followed from the left lung. After the patient's head had been lowered for quite a while to facilitate the flow of pus, the wound was cleansed and dressed. Expectoration was rather free for the first two or three days. Temperature gradually subsided, and by the ninth day it was normal; cough and expectoration very slight. On the fourteenth day the patient was discharged cured.

In behalf of the X ray, I will say that it was tested three times in this case and each time failed to locate the pin.

A. J. HORN, M.D.

The Philippine Islands.

FORT WAYNE, IND., July 10, 1898.

To the Editor:—The prospect that the Philippine Islands may come under American rule suggests a matter of interest to the medical profession. The population of the islands is large and the country is very slightly explored. It will become necessary to send from the United States a num-

ber of men who will aid the administration there and who must combine scientific attainments and a habit of accurate observation with an occupation that will recommend them to the favor of the inhabitants of the group.

It is obvious that the medical profession alone can furnish such agents. Missionaries would come into collision with the religious prejudices of the people and traders would not possess the requisite training to study the ethnology, natural history, geology, economics and diseases of the Philippines. An immense store of invaluable information would be collected by men working in a scientific spirit and located in the numerous provinces and districts of the islands, and they would more than pay the expense of stationing them by making a census and reporting on the habits and resources of the people.

An excellent plan would be to divide the islands into sanitary districts, with a medical officer over each. He would have medical charge of the district, and also would be required to report on the matters mentioned above, and on all others of interest to the government of the United States. The medical officers would soon be self-supporting, and would be found useful in representing the administration in their districts. There are lawyers holding most of the offices of the government and the medical profession is systematically ignored. But this is a favorable opportunity to secure recognition for the culture and administrative ability of American physicians. They would go to these lands not to plunder or oppress but on a merciful mission, and the whole world would be enlightened by the reports they could furnish, while the United States would be honored by the work they would do. This would be a new departure in colonial administration and its success would be sure to make other nations imitate it.

I hope that the practical members of the profession and the influence of the JOURNAL may be enlisted in support of this suggestion. I am very respectfully yours,

W. P. WHERY, M.D.

Picric Acid as First Aid in Treatment of Burns.

GRANITE CITY, ILL., June 28, 1898.

To the Editor:—The treatment of burns is as yet unsatisfactory, the death rate about the same and many remedies are lauded, but picric acid in solution has given me excellent results; therefore I wish to record several cases treated by this procedure.

Shock and septicemia are the most dreaded results from the more severe cases, but all this can be eradicated by the persistent use of a weak solution of picric acid.

During the past three years several cases have come under my care and all have been treated alike, much to my satisfaction. While I do not wish to be original in this sense I wish to recommend a good thing.

T. B. K., chemist, age 23 years, in opening a can of gasoline the escaping gases exploded, burning him frightfully about the body, face and extremities. He was carried to a building and when I saw him was suffering untold agonies. I immediately had prepared a saturated solution of picric acid and bathed the whole body in it, covering the body with cotton and bandages. After a few minutes he said the pain was all gone and fell into a sleep. Several others who got burned at the same time expressed themselves as relieved as soon as the solution was applied.

I generally make up a pint of solution at a time and dilute as wanted.

Picric acid	4 dr.
Alcohol	4 oz.
Water distil	8 oz.

Picric acid for burns of the first or second degree is the simplest, quickest and most satisfactory treatment in my hands. It deadens pain and allays suppuration, healing spontaneously, the only objection being its staining qualities.

I generally soak absorbent cotton and lay it smoothly on the wound, cover this with rubber tissue and leave it on for two days or until a new skin forms.

I also apply an ointment occasionally, composed of ichthyol and vaselin, which softens the hardened epidermis.

While I do not propose to bring out anything new in this modern treatment I hope at least it may be more often tried by those who have discarded the old fashioned methods so long employed on suffering humanity.

F. E. TULLEY, M.D.

Plagiarism.

MUNCIE, IND., June 23, 1898.

To the Editor:—In Vol. XXX, No. 24, page 1401 of the JOURNAL, under "Original" appears an article by Gilbert I. Cullen of Cincinnati, Ohio, which has the appearance of being original, and no doubt the writer wishes to convey that idea among the readers of the JOURNAL, as no credit is given any one for the thoughts or language used.

It is the boldest piece of plagiarism I have noticed for years. It is apparently taken in its entirety from the "Encyclopedia Britannica." The Werner Edition, 1895, contains every thought and nearly every sentence exactly as it appears in Cullen's article. The only difference is, that the encyclopedia contains a little more.

A man who will copy from an encyclopedia and publish the article in a scientific journal of medicine and surgery as an original article, should be exposed, and dishonor heaped upon his head. It is an imposition upon the readers of the JOURNAL and also upon the editor and publishers, as it tends to lower the high standing and dignity of the JOURNAL.

Respectfully, F. E. HILL.

Etiology of Cerebro-Spinal Meningitis.

PARIS, ILL., June 27, 1898.

To the Editor:—I have been very much interested in recent reports and papers on cerebro-spinal meningitis, which I believe is caused by mold. Four of my cases were attacked after eating crackers that had molded and been warmed over by a grocer, and all have been in damp houses during damp weather. A great many cases occur in armies and among those who live in Alaska, where victuals are liable to be moldy. I notice that the straw used by the Third Illinois Infantry was damp.

Respectfully, W. H. TEN BROECK, M.D

Precocious Pregnancy.

INDIANAPOLIS, July 7, 1898.

To the Editor:—In reference to an article on page 42 of the JOURNAL for July 2, taken from the *Lancet* of April 23, I wish to say that I delivered a girl about June 1, at the age of 12 years and 10 months. The boy baby weighed seven and one-half pounds and is now doing nicely. The labor was normal in every respect; no forceps, no laceration, and an uneventful puerperium. This girl had menstruated several times before impregnation. She was not over-developed, and really not fully developed, there being little hair in the axillary or pubic regions. She is nursing her babe, though her breasts are small.

Sincerely,

WILMER CHRISTIAN, M.D.

P. S. I understand there was a girl 12 years of age delivered at the Women's Hospital, six years ago.

DES MOINES, IOWA, July 4, 1898.

To the Editor:—On Jan. 20, 1889, I was called to attend a case of confinement. On my arrival I found a girl 12 years and 10 months old in labor. After a rather tedious but uneventful labor I delivered her with forceps of a twelve-pound boy. The infant lived but a short time. The mother

had a normal puerperium. The mother of the girl was only 31 years of age at that time and had a daughter nearly four years older than the one confined. I am familiar with another case in which the mother was less than 13 years and 6 months old. I confined a girl in 1893, who stated to me that she had never menstruated and was less than 14 years old. This was afterward verified by her mother. She had no hair on the pubes, no enlargment of breasts or other signs of puberty. Very truly, L. DRAKELY ROOD, M.D.

BOOK NOTICES.

Abdominal Surgery. By J. GREIG SMITH, M.A., F.R.S.E. Sixth Edition. Edited by James Swain, M.S., M.D., etc. Two Volumes, 8vo, cloth. Pp. 1171. Philadelphia: P. Blakiston, Son & Co. 1897. [E. H. Colegrove & Co., Chicago Agents.] Price $10.00.

"Less than a year had elapsed," says the writer, "from the publication of the fifth edition of this work when it became necessary to issue a sixth." The editor was actively engaged in the preparation of the fifth by abstracting literature, and the author recognized his assistance by requesting him to edit the sixth edition, but he had scarcely finished the first 100 pages when the death of the distinguished author occurred.

Little change had been necessary to make in the text except such as the progress of surgery has made necessary. The chapter on Hysteropexy has been rewritten.

It is altogether unnecessary for us to commend to our readers this masterly work. It is sufficient to say that the present edition is unsurpassed.

The first volume contains six sections, viz.: 1, Diagnosis of Abdominal Tumors; 2, Abdominal Operations Considered Generally; 3, Operations on the Ovaries, the Fallopian Tubes and The Broad Ligaments; 4, Operations on the Non-Gravid Uterus; 5, Operations on the Gravid Uterus and for Ectopic Gestation; 6, Operations on the Stomach.

The second volume contains eight sections, viz.: 7, Operations on the Intestines; 8, Operations on the Kidneys and the Ureters; 9, Abdominal Operations on the Urinary Bladder; 10, Operations on the Liver, the Gall-bladder and the Biliary Ducts; 11, Operations on the Spleen; 12, Operations on the Pancreas; 13, Unclassified Operations for Growths and Cysts in Omentum, Mesentery, Peritoneum and Parietes; 14, Operations for Abdominal Injuries; 15, Operations for Peritonitis and its Effects.

Text-Book of Physiology. Edited by E. A. SCHAEFER, LL.D., F.R.S., etc. Volume I. Pp. 1036. Edingburgh and London: Young J. Pentland. New York: Macmillan Company. 1898. [From A. C. McClurg & Company, Chicago.]

This work is intended to be exhaustive and to furnish in an accessible form the substance of the literature of the world bearing upon the subject, so as to render it largely unnecessary for the student of physiology of the higher class to consult original papers in foreign languages.

The first volume deals mainly with the chemic constitution and the chemic processes of the animal body and with those physical and chemic phenomena which are connected with the production and elaboration of the secretions and other fluids of the body. The work is thorough and well finished.

The contributors to this volume are: J. S. Edkins, M.D.; Arthur Gamgee, M.D.; W. H. Gaskell, M.D., LL.D.; Francis Gotch, B. Sc.; Albert Gray, M.D.; J. Berry Haycraft, D. Sc., M.D.; W. D. Halliburton, M.D., F.R.S.; Leonard Hill, M.D.; F. Gowland Hopkins, B. Sc., M.D.; J. N. Langley, M.D., LL.D., F.R.S.; B. Moore, M.A.; D. Noel Paton, M.D.; M. S. Pembrey, M.D.; E. Waymouth Reid, M.B.; W. H. R. Rivers, M.D.; J. Burdon Sanderson, M.D., D.C.L., F.R.S.; E. A. Schaefer, LL.D., F.R.S.; C. S. Sherrington, M.D., F.R.S.; E. H. Starling, M.D.

Uric Acid as a Factor in the Causation of Disease.—A Contribution to the Pathology of High Blood Pressure, Headache, Epilepsy, Mental Depression, Paroxysmal Hemoglobinuria and Anemia, Bright's Disease, Gout, Rheumatism and other Disorders. By ALEXANDER HAIG, M.A., M.D. Oxon., F.R.C.P. Fourth Edition with 65 Illustrations, pp. 698. Philadelphia: P. Blakiston, Son & Company. 1898. [E. H. Colegrove, Chicago Agent.] Price $3.00.

This work first appeared in 1892, the second edition in 1894, the third edition in 1896 and the fourth English edition in 1897.

To those who believe that all ills in the human body, with a few exceptions, are due to uric acid, and "to be alkaline is to be happy," Alexander Haig appears as an enviable apostle and his book as the light of the world. We take pleasure in welcoming this new edition as embodying all the evil that can be said of uric acid and a thorough scientific demonstration of its baleful effects on the human body. To those not familiar with the work the book will be a revelation, not only on account of the undisputed facts which the author produces, but for the forceful manner in which they are arranged. That the work has passed to its fourth edition is plain evidence, if any were needed, as to the popularity of the work.

The Genesis and Dissolution of the Faculty of Speech. A Clinical and Psychological Study of Aphasia. By JOSEPH COLLINS, M.D. Pp. 432. New York: The Macmillan Company. 1897.

This work was awarded the Alvarenga Prize of the College of Physicians of Philadelphia, 1897.

It is an exhaustive monograph on the subject of aphasia and contains chapters on the history, general analysis and conception of aphasia, describes the different varieties under the head of motor aphasia, sensory aphasia, subcortical sensory aphasia, total aphasia and chapters on the diagnosis, etiology, morbid anatomy, treatment and medico-legal aspects.

This monograph will long stand as one of the most valuable contributions yet made on this subject.

A Manual of Hygiene and Sanitation. By SENECA EGBERT, A.M., M.D. Illustrated with 63 Engravings. Pp. 368. Philadelphia and New York: Lea Bros. Company. 1898.

This is a fair epitome of the existing state of the hygiene of the day with the exception of the chapter on quarantine, which, being taken from an unfair and misleading chapter on the subject in Rohé's Text-Book on Hygiene, is to that extent inadequate.

Transactions of the Section of Laryngology and Otology of the American Medical Association at the Forty-eighth Annual Meeting held in Philadelphia, June 1-4, 1897. Pp. 363. Chicago: American Medical Association Press. 1898.

This volume consists of reprints on extra paper of the papers read in the Section on Laryngology and Otology at the Philadelphia meeting of the ASSOCIATION. The volume is handsomely printed and it is needless to say that the illustrations present a better appearance than they do in the current number of the JOURNAL on account of the difference in the paper.

These Section books are becoming more and more popular each year, as they preserve in convenient form the special papers of the Section, without other matter.

The Johns Hopkins Hospital Reports. Report in Gynecology. 4to. Pp. 136. Baltimore: The Johns Hopkins Press. 1898.

The contents of this volume are: 1. A Critical Review of 1700 Cases of Abdominal Sections from the Standpoint of Intraperitoneal Drainage, by J. D. Clark, M.D. 2. The Etiology and Structure of True Vaginal Cysts, by James Ernest Stokes, M.D.

These high class observations are of great value to the medical profession and highly creditable to the authors. The possessor of a series of these reports, seven volumes of which have been issued, is to be envied as having at his hand a large share of all that is best in American experimental medicine and surgery.

Illustrated Skin Diseases. An Atlas and Text with special reference to Modern Diagnosis and the most Approved Methods of Treatment, by WILLIAM S. GOTTHEIL, M.D. New York: E. B. Treat & Co.

This work, three portfolios of which have been issued, will be issued in quarter portfolios, each containing 24 quarto papers, a text with numerous formulæ and four plates of cases from life, by a new photographic process.

The illustrations are accurate and numerous, and the plates are extremely life-like. We shall look for the succeeding portfolios with interest, and in the mean time compliment the author and the publisher on the splendid series so far presented.

Proceedings of the Dedication of the Hunt Memorial Building by the Hartford Medical Society, Feb. 1, 1898.

This volume, which is handsomely illustrated, contains pictures of Dr. and Mrs. Hunt; the building and its interior rooms; a poem by Mayer; the history and purposes of the building by Dr. Melancthon Storrs; the address on the occasion of the acceptance of the building by Dr. G. W. Russell; and the dedicatory address by Daniel C. Gilman, President of the Johns Hopkins University.

The volume concludes with the plans and description of the interior of the building and the list of members of the Society.

Yellow Fever, Clinical Notes, by JUST TOUATRE, M.D., translated from the French by CHARLES CHASSAIGNAC, M.D. Pp. 206, New Orleans: *New Orleans Medical and Surgical Journal*, 1898.

This work while translated from the French was not published in France, but Dr. Touatre who is a New Orleans physician wrote it in his mother tongue, being more familiar with that language than with the English, and his colleague, the accomplished editor of the *New Orleans Medical and Surgical Journal* has translated it.

It is a work giving results of thirty-three years of study, and observation of nine epidemics and it will be seen on inspection to be the work of a master.

A Country Doctor, by THOMAS HALL SHASTED, M.D., 1898, published by the author.

This book was originally published in the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION and two hundred and fifty copies have been printed, privately, for the author's friends. The sweet and simple story is charmingly told and the illustrations do not detract from the beauty of its English. Thousands of our readers enjoyed it when it was printed in the JOURNAL, and we refer those of our new readers who are not fortunate enough to possess a copy of the book, to the JOURNAL of Feb. 27, 1897.

Twenty-fourth Annual Report of the Secretary of the State Board of Health of the State of Michigan. Cloth. Pp. 723. Illustrated. Lansing. 1897.

This report covers the year ending June 30, 1896, is well printed and on good paper. A copious index adds very much to the usefulness of the volume, which is replete with data usually treated in such reports.

Proceedings and Addresses at a Sanitary Convention held at Detroit, Mich., Dec. 9 and 10, 1897. Paper. Pp. 160. Illustrated. Lansing. 1898.

This volume is a supplement to the report of the Michigan State Board of Health for 1898 and contains, among others, the following papers: "Germs; What They Are and how They Produce Disease;" "Isolation and Disinfection of Persons and Things;" "The Needs for and Value of Public Health Work;" "Popular Education in Sanitary Science;" "Diphtheria and Scarlet Fever, their Restriction and Prevention;" "Streets and Alleys and their Relation to the Public Health;" "Typhoid Fever and the Water-Supply of Detroit;" "Bicycling—from Social, Business and Healthful Standpoints;" "The Restriction and Prevention of Tuberculosis."

Transactions of the Vermont State Medical Society. 1897. Cloth. Pp. 224. Published by the Society, Burlington, Vt., 1898.

This volume contains the transactions of the annual meeting at St. Albans, Vt., Oct. 14 and 15, 1897, comprising the following papers: "Tumors of the Breast;" "Carcinoma of the Female Breast;" "Modern Management of Diphtheria and Croup Cases;" "Electrotherapeutics;" "Higher Medical Education;" "Osteitis Deformans;" "Paranoia;" "Significance of Post-climacteric Hemorrhages;" "Infantile Scorbutus;" "Uterine Curette in the Country;" "Cancer of Uterus;" also the medical laws of Vermont, etc. The volume is a credit to the society.

PUBLIC HEALTH.

Health in Michigan.—The State Board of Health reports, for June, the five most prevalent diseases as rheumatism, neuralgia, bronchitis, tonsillitis, influenza. Compared with the preceding month, diarrhea, remittent fever and measles increased in prevalence, and pneumonia, influenza and pleuritis decreased.

Sterilized Lymph.—We are so used to the phrases "arm-to arm vaccination" and "lymph direct from the calf," and to the preference shown to "fresh over stored lymph," that to most persons in England it would be a revelation to learn that no lymph is used in Germany until it has been kept four months under observation. Taken with the strictest antiseptic precautions, mixed with definite proportions of glycerin and sterilized water, the instruments and vessels being all absolutely aseptic, it is stored in sealed tubes and kept at fixed temperature until under the inhibiting influence of the glycerin, the extraneous microbes swarming in ordinary recent lymph have died out, the specific micrococci being unaffected and multiplying in the absence of other forms. This process of elimination of the foreign microbes and pure culture of the specific organisms occupies three or four months, and no lymph is sent out containing more than one or two harmless bacteria or torulæ in the cubic centimeter, most of the samples being absolutely free.—*Practitioner.*

Acute Primary Diphtheria.—The *Lancet*, April 30, comments upon the paper on membranous stomatitis of Dr. Jurist that appeared in this JOURNAL, March 19, and adduces a similar case reported in a French journal by Dr. Thiercelin. This latter case was regarded as one of true primary diphtheria of the mouth. The patient was an adult female who complained of pain on opening the mouth and had anorexia and a little fever. The lower surface of the tongue, which was not swollen, and the floor of the mouth were covered with a whitish-gray membrane. There were membranes on the cheeks, gums and lower lip. The disease did not extend beyond the pillars of the fauces. The submaxillary lymphatic glands were swollen, mastication was impossible, and intense fetor and salivation were present. Diphtheria bacilli were found in abundance in the membrane. M. Sevestre and M. Gaston have reported a series of cases of membranous stomatitis which constitute a special form, denominated by them "stomatitis impetiginosa." It attacked debilitated children, especially those recovering from measles or whooping-cough. A whitish adherent membrane similar to diphtheritic exudation formed. The tongue was rarely attacked. In nearly all cases the disease was associated with impetigo of the face. The staphylococcus pyogenes aureus was found in every case.

Actinomycosis of the Lungs.—Before the Berlin Medical Society, Dr. Karowski said the disease appeared in two forms. One of these, the catarrhal form, was due to the germs establishing themselves on the surface of the bronchial mucous membrane, the result being a chronic catarrh of the bronchi with actinomyces present in the sputum. The other form, the

destructive one, was of a much more serious character and presented three distinct stages, in the first of which the germs entered into the deeper strata of the bronchi, producing there a destructive peribronchitis. At first the illness is not attended by any well marked symptoms and it may often be taken for tuberculous phthisis, but the absence of tubercle bacilli and the appearance of actinomycosis fungi in the sputum may establish the diagnosis. Moreover, the area of dulness on percussion is not at the apex of the lung, as in tuberculosis, but is below the clavicle. In the second stage the fungi have come from the lungs to the pleura, producing there a hemorrhagic exudation. A swelling of the thoracic wall as in empyema is very characteristic. The purulent accumulation may discharge itself either through the skin or through the diaphragm. In the third stage there are metastatic formations in different parts of the body, together with symptoms of general septicæmia. These cases are hopeless. Dr. Karowski then showed a patient who had been sent to him for an alleged sarcoma of the pleura. There was well-marked dulness of the right side and by puncture the presence of actinomycosis was ascertained. An incision was made in the fifth intercostal space, a portion of the sixth rib was resected, the affected skin and muscles were freely removed, and the resulting large cavity was cauterized with Paquelin's thermocautery and dressed with iodoform gauze. The patient was profoundly collapsed after the operation, but eventually recovered. At the present time, three months after the operation, he still has a fistula, but actinomycosis fungi are no longer found in the discharge; the cough is only very slight and the patient has increased in weight five kilos (eleven pounds). Cases of pulmonary actinomycosis which have been successfully operated on are very rare, but would certainly become more frequent if an early diagnosis were possible.—London *Lancet*, April 23.

The Care for Revaccination in England.—Dr. Bond of Gloucester, England, has prepared for the Jenner Society a minute of the paramount needs of his fellow citizens for the stamping out of epidemics of smallpox. It is his belief that the experience of every recent English epidemic of that disease in his country, shows conclusively that if we wish to protect the community against these increasingly frequent scourges, we must take as much trouble to promote revaccination as we have hitherto taken to promote infancy vaccination. So long as the public are led to believe, as they have hitherto, that vaccination in infancy is the only thing about which the State need take any care, so long will the epidemics of so called "vaccinated" adolescents and adults, and of unvaccinated or badly vaccinated children be the approbrium of our country. There is only one way of effecting this, and that is by requiring, so far as is practicable, every child who enters a school to be efficiently vaccinated, and that before it leaves school it shall be equally efficiently revaccinated. It is to the revaccination of her adolescent population that Germany owes the remarkable immunity from epidemics of smallpox which she has for the last twenty years enjoyed, rather than to her compulsory vaccination in early childhood. For it is the adolescents and adults whose early protection in infancy has become attenuated by age who are most exposed to the risks of smallpox. If we could secure their protection by revaccination at the end of the school age, as well as that of the children at the commencement of it, we need not trouble ourselves much about the infants. We have been misled in this respect by false inferences from the experience of Jenner and the early vaccinators. When infants were the chief sufferers, because the adult population was in a large degree protected by having had the disease, the discovery of a means by which these unfortunate little victims could be almost absolutely protected naturally led to an undue estimate of the value of infant vaccination, especially as its effects were assumed to be more lasting than they really are. But we have now to deal with altogether changed conditions. Where infant vaccination is fairly well maintained, as it has been in Middlebrough, it is the adults who have not been revaccinated who are now the chief source of danger, a danger which can only be avoided by investing every young person with the same degree of protection which we have for the last half century conferred upon the greater portion of our infant population. These observations are germane to the position of our badly protected communities. The occurrence of a case of smallpox in one of our Southern camps of the army of invasion into Cuba, teaches us that we are ourselves "traveling on thin ice." It is all very well to regard the regular forces as practically immune against smallpox, but there is a host of camp followers, attendants, etc., over whom there is little official control, and in it is a mass of inflammable material only awaiting the horrid variolous spark to light up an epidemic. The medical authorities at Washington would do well to declare what steps have been taken by them to protect the army and navy against smallpox.

NECROLOGY.

T. E. Murrell, M.D., Professor of Ophthalmology in the Barnes Medical College of St. Louis, Mo., died June 26, at Denver, Colo., aged 48 years. Dr. Murrell was a graduate of the University of Maryland in 1873, and after two years of hospital work settled in Little Rock, Ark., where he established an excellent ophthalmic and aural practice, and won an enviable position in the profession. He was an active, scientific worker, contributing much to the Section on Ophthalmology of the American Medical Association. In 1890 he was elected Secretary of the Section, and three years later a Vice-President of the Association. In 1894 he accepted the chair of Ophthalmology in the Barnes Medical College, and removed to St. Louis. Two years later, he was compelled by failing health, to relinquish his work in that city, and since that time has resided at various points in the western States and Territories. His death was due to pulmonary hemorrhage.

William Howard Bailey, M.D., a man of much ability in many lines, died at his home in Albany, N. Y., June 24. He was born in Bethlehem, N. Y., December 28, 1825, his father being Dr. Solomon Bailey. After an academic education he was finally in 1853 graduated from the Albany Medical College and began practice in Utica, N. Y., but after a year or so removed to Albany, where he continued to reside until his death. He was most widely known for his activity in the New York State Medical Society, having been elected its President in 1881, after a service of ten years as its Secretary. Although a municipal reformer and sanitarian, with a membership in many societies his career became somewhat uneventful after 1887, when he retired to private practice.

Joseph M. Turner, M.D., Transylvania, Ky., 1841, of Brooklyn, N. Y., died at the home of his son, the Rev. H. B. Turner, in Washington, Conn., July 2, aged 82 years. In 1844 he removed to Brooklyn, N. Y., where he practiced continuously for near fifty years. Three sons by first marriage, one a Brooklyn physician, and another son, a daughter and a widow, are his survivors.

William H. Parks, M.D., died at the home of his son in Reading, Mass., June 21, aged 75 years. He was an alumnus of the Castleton Medical College, class of 1847, and practiced for some years in Great Barrington, Mass.

David B. Nelson, M.D., Harvard 1849, of Laconia, N. H., died there July 5, aged 75 years. He was a war veteran, a widely known citizen, and leaves a widow, a son and two daughters.

Louis E. Livingood, M.D., who was lost from the French line steamer *La Bourgogne*, in a collision sixty miles south of Sable Island, Halifax, N. S., was a member of the staff of the Johns Hopkins University. He was thirty-two years old, a native of Reading, Pa., and a graduate of Princeton and the University of Pennsylvania Medical School. He was appointed to a fellowship in the Johns Hopkins University in 1895, and

last spring was made an associate professor in pathology. He was on his way to study at the University of Strasburg.

A. L. MICHAELS, M.D., Kansas City, Mo., died June 29, from inflammation of the membranes of the brain complicated with pneumonia. Born in Illinois in 1854, he was graduated from the normal school at Valparaiso, Ind., in 1872, and was Professor of Natural Sciences in that institution for two years. He then studied medicine at Louisville, Ky., and later took a post-graduate course at Starling Medical College. In 1894 he was appointed Professor of Electro-Therapeutics in the College of Physicians and Surgeons, Kansas City, Kans., which position he held at the time of his death.

WILLIAM H. DECAMP, M.D., Grand Rapids, Mich., died July 4. He was born in Auburn, N. Y., in 1825 and during the Civil War was commissioned surgeon of the First Michigan Regiment of engineers and mechanics, serving three years. In the Grand Rapids Medical Society as well as in the State Medical Society, he has filled the position of President.

A. E. FARNHAM, M.D., Pittsfield, Me., July 2, aged 42 years. ——Aretus C. Haynes, M.D., Kansas City, Mo., June 29, aged 55 years.——H. C. Himoe, M.D. Albuquerque, N. M., July 3. ——Peter Hooper, M.D., Philadelphia, Pa., July 1.——Edward D. McDaniel, M.D., Coy, Ala., died in Denver, Col., June 27, aged 76 years.——Samuel McNair, M.D., Kalamazoo, died at Elburn, Ill., June 30, aged 75 years.——H. R. Nichols, M.D., Osage, Iowa, June 23.——W. C. Glines, M.D., Norwalk, Conn., June 27, aged 73 years.——N. C. Cowgill, M.D., Logansport, Ind., June 26.——T. Archibald Taylor, M.D., Washington, D. C., June 30.

DEATHS ABROAD.—Cornelius Herz, M.D., according to the press despatches from London died at Bournemouth, Eng., July 6. He was born in Besancon, France, September 3, 1845. His father was a German Jew, while his mother was French. His parents removed to England when he was quite young, but after a short time the family came to New York city. He was graduated from the College of the City of New York with the class of '64, and afterward received the degree of M.S., from his alma mater. After an apprenticeship in the hospitals of that city he was sent to Heidelberg to study medicine. He continued his studies at Munich and Vienna, and finally at Paris. He was poor and unknown, but brilliant, versatile and audacious, just the man to succeed in the French capital, and so, by giving lessons in English and French and writing for the French newspapers, he was able to go on with his studies and receive his medical diploma. In 1870 he became Assistant Surgeon-General to General Chanzy's Army of the Loire and for his services received the Cross of the Legion of Honor. The Franco-Prussian war over he returned to America and married in New York Bianca Saroni a cousin of the poet Heine. The couple having soon settled in California he appeared as a member of the San Francisco Board of Health. It was there also that he started on his career as an electrician, and founded the electrical works which are still the pride of the city. In 1877 he went with his family to Paris and started on a brilliant career. He overthrew the gas monopoly, and provided the main thoroughfares with electric light. He founded the leading electric journal of the world, *La Lumière Electrique*. He established the telephone system of France, organized the first electric exhibition that was ever held, and finally became associated with the Rothschilds in putting into practice the theory of the transmission of force by electricity. At the same time he rapidly became a great social and political figure in the Republic. He was successively raised from the rank of Knight of the Legion of Honor to that of Commander, and, finally, when he was only 40 years of age, to that of Grand Officer. And such men as Chanzy, Gambetta, Ferry and De Freycinet were his sponsors at each promotion. He just missed receiving the Grand Cross of the Order of SS. Maurice and Lazarus of Italy. Crispi signed his brevet shortly before he fell, and Rudini, who succeeded him, canceled the letters patent, which are still in the archives of Consulta. For years his income was large, and his entertainments were princely, while his charming manners and magnetic personality made him a great social favorite. When in 1892 the Panama bubble burst, Dr. Herz went under, and was charged with being implicated in the scandal. When the exposures were first made he fled to London, but was arrested under extradition proceedings on a warrant from the French Government charging him with fraud and embezzlement. As he was confined to bed, he was unable to appear in court. The case was kept open, and he was continued under arrest in his bed from 1893 to 1896. By special act of Parliament the magistrate was permitted to attend his bedside and take testimony. The magistrate promptly declared that the charges were utterly invalid and scarcely deserving of notice, and Herz was released May 2, 1896. Meanwhile the French Government had instituted numerous proceedings against him and confiscated all his property. As he claimed that this was persecution and that he had been injured in name and health, he demanded of the State Department as an American citizen that it prefer a claim for $5,000,000 against the French Government. The matter is still under advisement. Nordau is said to have called attention to many stigmata of degeneracy in Herz's person but the profession scarcely claims Herz, as at no time did he more than practice medicine as a minor specialty. He frequently expressed a contempt for its emoluments.——Leandro Urrecha, M.D., Madrid, a distinguished obstetrician.——Dr. Gustav, member of the Imperial Council and of the Chamber of Deputies of Austria, aged 59 years.——Johannes Alexander Garten, *privat-docent* of surgery in Leipsic——Prof. Frederic Jacob Trier, Copenhagen.——Dr. Dezaneau, Angers.——Dr. Neudoerfer, *privat-docent* of surgery in Vienna.——Prof. T. Eimer, Tubingen——F. A. De Zenker, professor of pathologic anatomy at Erlangen; "noted for his discovery of trichinosis in man."——Carl v. Rokitansky, professor of gynecology at Graz, aged 51 years.——K. E. With, professor of internal medicine at Copenhagen.——Dr. Fr. Kretschy, lecturer on internal medicine in the University of Vienna, aged 50 years.

SOCIETY NEWS.

New Jersey State Medical Association.—At the annual meeting held in Asbury Park, June 28, 29 and 30, the following officers were elected: President, C. R. F. Fisher, Bound Brook; first vice-president, L. M. Halsey, Williamstown; second vice-president, William Pierson, Orange; third vice-president, J. D. McGill; corresponding secretary, E. L. B. Godfrey, Camden; recording secretary, W. J. Chandler, South Orange; treasurer, Archibald Mercer, Newark. We will publish a report next week.

Canadian Medical Association.—The thirty-first annual meeting will be held in Laval University, Quebec, August 17, 18 and 19, 1898. There will be the usual fare and a third rate, on the certificate plan. Arrangements made so that members' families may take side-trips at a trifling cost. J. M. Beausoliel, president; F. N. G. Starr, gen. secretary, 471 College street, Toronto.

International Association of Railway Surgeons.—The eleventh annual meeting was held in Toronto, Canada, July 6, 7 and 8, 1898, under the Presidency of Dr. George Ross of Richmond, Va. The following officers were elected for the ensuing year:

President, Dr. Bruce L. Riordan of Toronto; treasurer, Dr. E. R. Lewis of Kansas City, Mo.; secretary, Dr. Louis J. Mitchell of Chicago. The vice-presidents of the Association are Drs. R. E. L. Kincaid of Bonham, Texas, James G. Hunt of Utica, New York; James L. Foxam, Huron, South Dakota; W. Gunn of Clinton, Ontario; Hugh H. McKnight of Hartford, Conn.; C. F. Leslie of Clyde, Kansas; Hugh M. Taylor of Richmond, Virginia.

The place of next meeting was left to the Executive Board to decide between White Sulphur Springs, Virginia, and Richmond, Virginia.

MISCELLANY.

Dr. Grandy is Made Surgeon.—Dr. Luther P. Grandy, a most prominent and popular physician of Atlanta, was recently appointed by Governor Atkinson surgeon of the Third Regiment, Georgia Volunteers. Dr. Grandy will rank as major and will have under him two assistants, each of whom will hold the rank of captain.—*Atlanta Constitution.*

Hospital Ship for Manila.—At the suggestion of Mrs. Greenleaf, wife of the surgeon-in-chief of hospitals in the field, the Red Cross League has undertaken to start the collection of $300,000 for the purchase of a hospital ship for the troops at Manila. The plan is to raise this sum by popular subscription in all the States west of the Rocky Mountains and then present the ship to the government.—*Times-Herald*, Chicago.

Kindness to the Wounded War Horse.—With a view to avoid extreme suffering among wounded horses or mules on the field of battle, it has been ordered by the Major-General commanding the Army that a veterinary surgeon, or some other person detailed by the commanding officer, will accompany troops in an engagement, whose duty it will be to put an end to the agonies of all horses or mules that in his judgment are suffering to a degree requiring such action on his part.

Examination of Physicians to Fill Vacancies in Volunteer Regiments.—The Secretary of War has adopted the recommendation of the Surgeon-General that when a physician has been appointed by the governor of a State to fill a vacancy in one of the regiments mustered into the United States service, the physician appointed should be examined by a board of three physicians appointed by the governor and without expense to the United States. The certificate of this board that the candidate has passed a satisfactory physical and professional examination be accepted by the War Department as evidence of his fitness for the place to which he has been appointed.

The Physical Examination of Recruits.—Comments on the fine physique and splendid development of the men in the Volunteer Army have been of frequent occurrence in our newspapers owing to the strict examination to which the men were subjected prior to muster into the service. We referred to this subject in our editorial of May 7, showing how large a percentage of men who considered themselves fit to be soldiers were rejected by the recruiting officers of the regular army. It now appears that quite a number of volunteers with serious defects were passed at the examinations a few weeks ago, owing probably to the hastiness and feverishness of the mustering-in procedures. In the recent transfer of men from the line to the hospital corps to fill up the latter an examination into the physical condition of the candidates was required by regulation and in conducting these examinations the medical officers representing the hospital corps rejected so many and for manifest cause that the attention of chief surgeons of corps and divisions was invited to the subject with the view of eliminating from the ranks all men unfit for service on account of disqualifications existing prior to enlistment. This will increase the percentage of rejected recruits still further and will no doubt lead to greater care and strictness on the part of medical men on duty at recruiting stations and mustering camps.

Analysis of Water Supplies for Army Camps.—From Washington, D. C., we learn that if, in the establishment of camps of organization and instruction or other comparatively permanent camps, it is deemed necessary to have a sanitary analysis of the water supply made in the laboratory of the Surgeon-General's Office. Chief surgeons are authorized to forward samples by express to Deputy Surgeon-General Smart, Army Medical Museum, Washington, D. C., and are required to send a communication to the Surgeon-General, giving an account of the source and the sanitary surroundings of the water. Not less than half a gallon should be sent as a sample. Care should be taken that the containing vessel is perfectly clean. Any vessel which requires chemicals to clean it should not be used. It should be cleaned by filling several times and washing with water from the source which is to be sampled. Wickered glass demijohns, otherwise unprotected or clear glass bottles, boxed with packing, should be used in preference to stoneware jugs or other vessels of opaque material. Care is suggested also that the corks used be new and clean, for a cork tainted with any oxidizable substance, particularly alcoholic or saccharine liquids, destroys the value of the water sample for the purposes of analysis.

Red Cross Literature.—The war is bringing forth a crop of booklets decorated with the Red Cross of the Geneva Convention. Two such have come to our notice during the past week. The first is a "Stretcher Drill" by Surgeon-Major J. J. de Zouche Marshall, of the 3d V. B. East Surrey Regt., published by permission of Her Majesty's Stationary Office. This is an excellent little manual of its kind, but there is no room for it in this country notwithstanding the recent expansion of our military forces, as the "Drill Regulations for the Hospital Corps," published by the U. S. Government for the use of the troops, answers all our purposes. It is to be observed that the latter suffers in no way by comparison with the new English production. We discarded the fixed sling several years ago and our regulation litter weighs only a little over sixteen pounds while that carried by the British Red Cross soldier weighs thirty-two pounds. The second is "Antiseptic Methods as Applied in Active Military Field Operations," translated from the French of E. Forgue, Surgeon French Army, by Professor Louis Bazet, President San Francisco Polyclinic, and published for the use of Sanitary Corps of the National Guard, State of California by direction of Colonel Wm. E. Hopkins, Surgeon-General. It insists on asepsis in the field at the first dressing and ambulance stations by the free use of boiled water.

Army Health Reports of Troops in the Field.—On inquiry at the office of the Surgeon-General of the Army we find that satisfactory reports for the week ending June 25, have been received from the Corps encamped at Chickamauga, Ga. From the 1st Army Corps the Chief Surgeon, Lieutenant-Colonel Huidekoper, reported that the three division hospitals have been completed, with cots for 150 patients in each, and are doing effective service, although they do not yet have their complement of Hospital Corps men as attendants. The reserve ambulance company has been filled up; and the reserve field hospital started in connection with it has been used as a receiving station and a training school for men transferred to the hospital corps from the line. The general health is excellent, less than 1 per cent. absolutely sick, and less than 3 per cent. when all the trifling cases excused from duty and held in quarters are included. Reports from Lieutenant-Colonel Hoff, Chief Surgeon of the 3d Army Corps, show a small sick list in most of the regiments, although many men have been taken upon this list on account of vaccinia in its ordinary progress. Three of the regiments have relatively a large number on sick report. These are the 1st and 2d Arkansas and the 1st Mississippi Infantry. The diseases are chiefly malarial, and their prevalence is referred to the exposures incident to a change to an elevated location in the case of men who came from malarial districts. Lieutenant-Colonel L. M. Maus, Chief Surgeon of the 7th Army Corps, Major General Fitzhugh Lee, commanding, reported that during the week ending June 25, the camps of the Corps at Jacksonville, Florida, were in excellent condition. The grounds are policed regularly, and ditches have been dug to carry off surface water. The sinks have been provided with half barrels, and tubs containing saw-dust are used as urinals. The water-supply is abundant and of excellent quality, from artesian wells. The bathing facilities are superior; shower

baths have been constructed under temporary frame shelters for all the regiments. No trouble has been experienced in this command about rations or cooking; Hunt and Buzzacott ovens have been provided for all the battalions. The health of the men continues good. Occasional cases of disease occur, such as diarrhea, colic and debility from relaxing climatic influences. Lieutenant-Colonel A. C. Girard, Chief Surgeon 2d Army Corps at Camp Alger, Virginia, reported that the deficiencies of supplies is gradually being remedied. The non-effectives have constituted 6 per cent. of the strength, chiefly due to vaccination. The prevalence of measles is abating. The water-supply is good and is becoming plentiful on account of the sinking of deep wells. The efficiency of the division hospitals is improving, and the ambulance companies are being filled up by transfer from the line; the hostility to these transfers on the part of volunteer officers and men is passing away.

Camp Notes From the Army Corps.—From the 2d Army Corps, Camp Alger, Virginia, it is reported that during the week ending July 2, the non efficiency from sickness constituted three per cent. of the strength. Typhoid fever seems to be on the increase, and is believed to be due to the use of well waters on the farms in the neighborhood of the camp. The deep wells of the regiments give a pure supply. Deputy Surgeon General Smart has been directed to make a careful inspection into the sanitary condition of the camp, giving special attention to the water-supply and to the etiology of cases of typhoid fever occurring in the command. Colonel A. C. Girard, Chief Surgeon, has issued an order for the daily instruction of volunteer medical officers, but it can not be carried out systematically, as Major John L. Philips is the only regular medical officer with him, and both are worked to their full capacity in organizing, equipping and attending to sanitary matters. According to Lieutenant-Colonel Maus, Chief Surgeon 7th Army Corps, the water supply of that Corps at Jacksonville, Fla., is from a system of artesian wells. It is pure, healthful and abundant, and although saturated with hydrogen sulphid when freshly drawn this speedily escapes after exposure to the air. Colonel Maus considers it as good as any that could be obtained anywhere, and does not think it necessary to send any of it to the Surgeon-General's office for analysis. Some difficulty has arisen about the disposal of excreta. It appears that the city authorities of Jacksonville objected to the pit system used in the Camp, whereupon the Chief Surgeon recommended that if it could not be disposed of by a crematory, it should be hauled to a convenient place on the main sewer where a suitable manhole is provided with a hopper and allowed to escape to the river with the city sewage.

A Temperance Order from Army Headquarters.—Major-General Miles, commanding the Army, has issued general orders under date July 2, 1898, enjoining commanding officers to restrict or prohibit the use of wines and beer in their camps, and urging example as well as precept upon all officers in the interest of health and efficiency. The orders read as follows:

The Army is engaged in active service under climatic conditions which it has not before experienced.

In order that it may perform its most difficult and laborious duties with the the least practicable loss from sickness, the utmost care consistent with prompt and efficient service must be exercised by all, especially by officers.

The history of other armies has demonstrated that in a hot climate abstinence from the use of intoxicating drink is essential to continued health and efficiency.

Commanding officers of all grades and officers of the medical staff will carefully note the effect of the use of such light beverages—wines and beer—as are permitted to be sold at the post and camp exchanges, and the commanders of all independent commands are enjoined to restrict, or to entirely prohibit, the sale of such beverages, if the welfare of the troops or the interests of the service require such action.

In this most important hour of the Nation's history it is due the Government from all those in its service that they should not only render the most earnest efforts for its honor and welfare, but that their full physical and intellectual force should be given to their public duties, uncontaminated by any indulgences that shall dim, stultify, weaken or impair their faculties and strength in any particular.

Officers of every grade, by example as well as by authority, will contribute to the enforcement of the order.

Organization of Ambulance Companies.—As showing the system of organization of ambulance companies for duty in connection with field hospitals in the army as a whole, the following regulations published from headquarters of the Seventh Army Corps, Gen. Fitzhugh Lee, at Jacksonville, Fla., on the recommendation of Lieutenant-Colonel Maus, Chief Surgeon of the Corps, may be cited: The personnel of each division ambulance company of this corps will consist of three medical officers, seven hospital stewards, three acting hospital stewards and 104 privates, which will be under the command of the ranking medical officer assigned to duty with it, who will be held responsible for its discipline, instruction and management. He will make requisitions on the chief surgeon of the corps for the necessary pouches, drill regulations and blanks. He will also submit requisitions for the necessary litters, camp equipment and ordnance supplies without delay to the chief quartermaster and ordnance officer of the division. Rations for the division ambulance companies will be drawn as ordered for line organizations. The division ambulance companies will be given daily instructions in marching, litter drill, loading and unloading litters, improvisation of litters, method of removing wounded without litters, placing patients on horseback, the use of the travois, two horse litters, the preparation and use of ordinary wagons and other vehicles for the transportation of the sick and wounded, ambulance drill, inspection and muster of the detachment, tent drill, packing, packing hospital and orderly pouches, and the clothing roll. Regular daily instructions will be given in first aid to the wounded and medical emergencies. Directions as to the scope of first aid and medical emergency instruction, will be submitted by the chief surgeon of the corps. An ambulance will report daily after surgeon's call at each regiment to remove to the division hospital all cases designated by the regimental surgeon for hospital treatment. Men who become injured or are taken ill after surgeon's call, and requiring hospital treatment, will be reported to the surgeon in charge of the division hospital, who will have them removed as soon as possible. Medical officers assigned to duty with each regiment will attend surgeon's call and those men undergoing treatment in quarters, render emergency aid when needed, prescribe for those not on sick report requiring medicine for slight ailments and look after the sanitary condition of the regiment. They will be furnished pocket cases, first aid packages, bandages, tourniquets and all medical supplies needed for the thorough performance of their duties: also one orderly and one hospital corps pouch. All assignments of medical officers, hospital stewards, acting hospital stewards and privates detailed for duty with the corps and division hospitals, litter-bearer and ambulance companies and regiments will be made by the chief surgeon of the corps. Departures from the assignments of medical officers and members of the hospital corps as set forth above will be temporarily made by the chief surgeon from time to time to meet the exigencies of the camp or battlefield.

Assignments, etc., of Medical Officers.—To the 1st Corps, General J. R. Brooke at Chickamauga, Ga.: Majors Calvin H. English and John P. Dodge, Brigade Surgeons and the following Acting Assistant Surgeons: Gerry S. Drever from Chicago, Illinois, George K. Sims from Richmond, Virginia; Wm. H. Haskin from New York City; David Baker from Fort Thomas, Kentucky; H. A. Glatzmayer from the General Hospital at Fort Myer, Virginia, and Charles S. Stern from Hartford, Connecticut. To the 2d Corps, General William H. Graham, Camp

Alger, Virginia: Major Joseph K. Weaver, Brigade Surgeon. To the 3d Corps, General James F. Wade, Chickamauga, Georgia: Majors Frank Bruso and Charles M. Drake, Brigade Surgeons. To the 4th Corps, General J. J. Coppinger at Tampa, Florida: Majors Schuyler C. Graves and Samuel T. Armstrong, Brigade Surgeons; Lieutenant Carl R. Darnall, Assistant Surgeon, U. S. A., whose orders to join General Shafter's Corps have been revoked and the following Acting Assistant Surgeons: J. W. Donnelly, Stephen M. Long, D. T. Laine, R. Fleming Jones and Robert Boyd. To the 5th Corps, General W. R. Shafter at Santiago, Cuba: Lieutenant Colonel Nicholas Senn as Chief Surgeon of the Operating Staff and Acting Assistant Surgeon Harry S. Greenleaf. To the 7th Corps, General Fitzhugh Lee at Jacksonville, Florida; Majors George B. Bunn, George R. Fowler and John R. McDill, Brigade Surgeons. To the 8th Corps, General Wesley Merritt, Philippine Expedition: Major Samuel O. L. Potter, Brigade Surgeon. To the General Hospital at Fort McPherson, Atlanta, Georgia: Majors Willis Z. McDonald, Brigade Surgeon. To the General Hospital at Fort Monroe, Virginia: Major Donald Maclean, Brigade Surgeon and Acting Assistant Surgeon Eugene H. Hartnett. To the Leiter Hospital at Chickamauga Park: Acting Assistant Surgeon Henry R. Carter, Jr., from New Orleans, Louisiana. To the General Hospital at Key West, Florida: Acting Assistant Surgeons Charles Boyd from Macon, Georgia, and Robert C. Eve from Augusta, Georgia. *Resigned.*—Major Otis H. Marion, 6th Mass., Infantry Volunteers. *Nominations.*—Charles P. Pollard of Alabama as Assistant Surgeon of the 5th Regiment Volunteer Infantry; George E. Lyon of Missouri as Surgeon of the 3d Regiment of Volunteer Engineers and Julius R. Shnelke of Wyoming, and John H. Gibbon of Pennsylvania as Assistant Surgeons of the same regiment; Walter D. Webb and Charles I. Proben of New York as Assistant Surgeons of the 1st Regiment of Volunteer Engineers. *Nominations confirmed.*—Wm. W. Purnell of the District of Columbia and Joseph L. Bell of Illinois to be Assistant Surgeons of the 8th Regiment of Volunteer Infantry, and Julius A. Schnelke of Wyoming to be Assistant Surgeon of the 3d Regiment Volunteer Engineers.

The Field Medical Service of the Second Army Corps.—Lieut.-Col. A. C. Girard, chief surgeon, Second Army Corps, Camp Alger, Virginia, explains the contemplated work of the Medical Department as follows:

The Medical Department in camp.—The largest unit of hospital administration is to be the division hospital; if a brigade is separated permanently it will be a brigade hospital; if a regiment is separated permanently it will be a regimental hospital. The regiment in camp is entitled to one medical officer, one hospital steward, one orderly and one orderly for each medical officer, to carry the pouch, when on duty. The orderlies are detailed from the hospital company at the division hospital and for greater convenience should be assigned to the regiment for rations. The other medical officers and hospital stewards of the regiment do duty with the regiment unless detailed by the division commander, on the recommendation of the chief surgeon of the division, with the field hospital. The usual duties of regimental medical officers are: Attending sick call and sanitary duties. The senior medical officer will prepare the morning report of sick for the adjutant of the regiment and send a copy of it to the brigade surgeon.

For the purpose of caring for the sick in quarters with the regiment the government provides medical chests Nos. 1 and 2, one orderly pouch for each medical officer, one hospital corps pouch for the orderly, one surgeon's field case for each medical officer, one field desk, two litters and two lanterns. As these supplies have not all been received, owing to failure of contractors, improvisation had to be resorted to. The troops which have left for Cuba, however, have been equipped with the regulation supply, with the exception of the surgeons' field cases, which have not been received. Sufficient field cases (surgeons') have been obtained from well-equipped regiments in this camp and the departing troops have been supplied with at least one for each regiment. This method will be continued until a sufficient supply of field cases is received. They are scarcely necessary in war time and have been principally devised for duty with small commands in Indian warfare. In actual war major operations are not performed by regimental surgeons but by the operating staff of division or brigade hospitals, and for minor operations the instrument case in the orderly pouch is sufficient. The sick of a regiment which can not be treated in quarters or with the means furnished to its medical department are sent to the division hospital.

Hospital service.—The hospital service for a command in the field is performed for the highest military unit by the division. A division hospital is established on the basis of 200 beds, the supplies for it or for its lesser units are provided for in the field supply table; tentage, transportation, ambulances and other equipments are obtained from the quartermaster department. The hospital is in charge of a medical officer detailed for the purpose, preferably a brigade surgeon or senior regimental officer of the command, who has for his staff an executive officer and a recording officer. The wards usually consist of twenty-four beds in four tents, each of which is under the charge of one or more medical officers, according to the gravity of the cases. The quartermasters and ordnance equipment will, under General Orders 76, War Department, be under charge of the two line officers detailed for the purpose.

The ambulance company.—The *personnel* of the division hospital, aside from the officers enumerated above, consists of as many hospital stewards as may be needed, detailed by the division commander to the division hospital from regimental hospital stewards. Privates of the hospital corps are either enlisted for that duty or transferred from regiments, the ratio of 2 per cent. of the command being the basis. These men are formed into a hospital company consisting of 196 men, under the command of a medical officer with three subordinate medical officers. The company is divided into three sections composed, as far as practicable, of men transferred from regiments forming the brigade. Each section is divided into three sub-sections composed of men transferred from respective regiments, in order that if a division hospital is in active service or changing station, or is divided into brigade or regimental hospitals, the men coming from each brigade or regiment will accompany their own organization. Each section will be further subdivided in conformity with its duties; one-half will be for duty in the division hospital, the other half will man the ambulance company, act as watchmen, accompany the regiment on the march, etc.

This establishment will be under the control of the chief surgeon of the division, who will receive his orders from the division commander in matters of military control and administration.

Medical service on the march.—When a command starts out on the march, each regiment will be supplied with three ambulances and its proportion of the hospital corps, from the ambulance service. The medical officers allowed by law will march with the regiment as mentioned above. The medical officers detailed by the division commander in division hospitals will march with the division hospital, if the hospital is to be moved; if not moved they will remain on duty with it. If any part of the command is permanently detached the division commander will order the medical officers and hospital stewards in division hospital to accompany the division hospital or its fractions, with its equipment.

Medical service in battle.—As soon as a regiment or command deploys for action, its medical department will wheel out of the way of the fighting force and be under the control of the senior officer present, who will assemble the detachments and ambulances in a place out of immediate reach of the enemy's bullets, preferably indicated by the military commander. Each regiment will be accompanied into action by its senior medical officer for duty, with his orderly and hospital steward, who will keep station with the commander. The division hospital will be located by the commanding General. As soon as practicable without exposing the hospital corps and ambulances to unnecessary crippling, the hospital corps, under command of the senior medical officer present, supplied with its litters, will commence the work of collection and assistance to the wounded, who will be carried to the collecting station and thence to the division hospital, or as a whole or in sections it will be advanced on the battlefield after an engagement.

The field hospital train.—The field hospital train is on a basis of one ambulance to every 400 men and one wagon to every 600 (one third the allowance of wagons is added when four mule wagons are used). This transportation is under the direct control of the line officer detailed for the purpose and will be parked in the vicinity of the division, brigade or regimental hospital as the case may be. The drivers of the ambulances will be privates of the hospital corps from the regiment to which they formerly belonged. The wagon drivers will be civilians.

When starting on the march the ambulances of each regiment will follow in the immediate rear of the regiment with

the detail of the hospital corps, and report to the senior surgeon of the regiment for instructions. The sick of the regiment requiring hospital treatment will be sent in the ambulance to the division hospital.

Dr. Frederick Holme Wiggin has recently been appointed, by the Commissioner of Public Charities of New York City, assistant visiting surgeon to Bellevue Hospital.

New Publications.—The *Medical and Surgical Monitor*, Vol. I, No. 1, June 15, 1898, issued at Indianapolis, and the *St. Louis Medical Gazette*, Vol. I, No. 1, June, 1898, are new monthly publications devoted to medicine and surgery.

Dry Labor.—Brodhead, in his service in the Sloane Maternity Hospital, has found that fully 15 per cent. of the women have labors which are strictly dry, "the accident" occurring nearly twice as often in multiparæ as in primiparæ. In the latter class the dry labor is usually more painful. He considers the dangers from this condition as dangerous to the child, *i. e.*, asphyxia and meningeal hemorrhage; dangers to the mother, *i. e.*, laceration of the soft parts, pressure necrosis, hemorrhage, sepsis, slower convalescence and possible rupture of the uterus. —*Med. Record*, May 14.

New Diagnostic Sign of Measles.—The value of Koplik's diagnostic sign (*vide* JOURNAL, vol. xxx, p. 1063) is confirmed by Libman in the *Medical Record* of June 11. His observations extend over fifty cases and in every case Koplik's sign was evident. He believes that "the mouths of children applying for admission to hospitals should regularly be examined for the measles spots." In addition to these fifty cases, the spots were observed in a number of dispensary patients, and in every case where the spots were evident, measles eruption was present or appeared within a few days.

Hemorrhoids.—Sims (*Maryland Med. Jour.*, May 7) advocates a new operative treatment applicable to the majority of cases of both internal and external hemorrhoids; also to other benign neoplasms of that region. With the patient in either the lithotomy or Sim's position, he introduces a speculum, divulses the sphincters as widely as possible by the instrument and with the thumbs stretches them until completely paralyzed. The piles now presenting themselves are everted as much as possible and the anal region irrigated with a 1 to 2000 bichlorid solution. On pulling out the tumors by forceps, the mucous membrane is cut through with a sharp scalpel around the base of the pile, and a silk ligature tied tightly in the groove made by the incision, including only the blood vessels and connective tissue. "The pile is then cut off close to the ligature, leaving only enough to hold it, and the cut edges of the mucosa are brought together over the stump with continued sutures of catgut." With external piles the same method may be used.

Large Doses of Carbolic Acid Given with Impunity.—Dr. Andrew H. Smith of New York says that in following out certain suggestions contained in an article in the *Lancet*, regarding the free administration of pure carbolic acid in scarlatina, he has been astounded at the enormous doses of carbolic acid that may be safely given to a person provided the acid used is pure. He also asserts that the occurrence of smoky urine, or "carboluria," is no cause for alarm, as it does not imply any diseased condition of the kidney, and is not accompanied or followed by albuminuria. He has given patients the enormous daily dose of two and one-half drams of pure carbolic acid, diluted with water, and has kept this up for two or three weeks at a time without observing any deleterious effects from it. Of course, the urine of these patients was either smoky when voided, or became very dark after exposure to the air from oxidization of some of its constituents. These experiments, it need hardly be added, were not conducted for the purpose of satisfying an idle curiosity regarding what the human organism was capable of enduring, but with a view to a utilization of this, or some other similar antiseptic, in the internal treatment of various infectious diseases.—*Philadelphia Medical Journal*, April 23.

New Light on Malaria.—R. Koch, who has just returned to Germany, devoted much of his two years in South Africa to a study of tropical malaria, which he considers resembles in many respects the Texas fever of animals and is, like that, conveyed by an intermediate agent, the tick in one and the mosquito in the other, but he has proved that the contagion is transmitted in the eggs of each, as well as by the insect itself. His most important achievement is his discovery of the exact temperature curve of tropical malarial fever. The temperature first rises and remains at this height for about half the length of the attack; then falls somewhat, returning abruptly to its former height, where it remains for the other half of the attack, which lasts about thirty-six hours in all, then rapidly falling to normal. The usual blind administration of quinin at regular intervals is absolutely useless. Quinin does not kill the plasmodium; it merely checks its development. We know now the exact moment when to administer it to produce the desired effect, which is the stage in the development of the plasmodium that precedes sporulation. *Quinin at the right moment cures tropical malaria even in its worst forms.* Koch confirmed this assumption in every case except two moribund. Draining swamps, planting eucalyptus, sanitoria, etc., are ineffectuel prophylactic measures. The only effective measures are to keep mosquitoes away and out of residences (there is an island off the coast which is free from mosquitoes, and malaria is unknown there), and send scientific physicians to administer quinin at the proper moment. He adds that ten to fourteen days must elapse after infection before the plasmodia accumulate sufficiently to produce an attack. He considers the quotidian form the manifestation of two superposed tertian forms. He found four varieties of tropical malarial fever; two very rare; the third is the kind experienced in temperate countries, which occurs in 10 per cent. of the cases there, and the fourth, or very severe kind, in 90 per cent. He is convinced that the problem of artificial immunity will be solved in time, reasoning from the natural inherited immunity of the coast negroes and the acquired immunity of the negroes who, coming from the mosquitoless mountains down to the coast, pass through a severe attack and are immune afterward, like animals who have passed through an attack of Texas fever in youth when it is usually mild.—*Deut. Med. Woch.*, June 16.

Blood Examinations.—Heiman, in the *New York Medical Journal* of May 7, writes concerning "Current Methods of of Blood Examinations." He points out that malarial organs must be distinguished from nucleated red cells, degenerated red corpuscles, plaques, precipitation of dye and fungi developed in the aqueous solution of methylene blue. The point of practical importance when staining is to be sure of finding the characteristic brown pigment of the malarial organism. He considers malarial disease endemic in New York and vicinity, especially on the river fronts. The specimen is stained with eosin-alcohol solution for five minutes then washed well in water, dried with filter-paper, counterstained with concentrated aqueous methylene blue solution for two minutes, again washed in water, dried with filter-paper and mounted in balsam, when the specimen is ready for examination with an immersion-lens. He finds the plasmodia, as a rule, in the cells stained light bluish, their various forms depending on the stage of the disease. They have a characteristic small, brown, granular pigment in the sterile form and are clumped up in the center or periphery in the spore form.

Surgery of the Stomach.—In the *New York Medical Journal* of May 7, Keen of Philadelphia, gives a somewhat detailed review of the various operations now performed on the stomach. He considers that surgery of this organ has been rendered possible: 1. By the discovery of antisepsis. 2. By experiments

on animals. He says: "Had vivisection contributed nothing else to the progress of surgery, its services in the surgery of the stomach alone would be sufficient to justify it." He considers that gastrolysis has a somewhat restricted but still important field in gastric surgery, and that three indications exist for the operation of gastrotomy: 1. For the purpose of removing foreign bodies; 2, in cases of stricture of the esophagus, and 3, for exploration, each of which indication he considers in detail. He says: "That gastrotomy for malignant diseases does not save life is self-evident, but in preventing the patient from slowly starving to death, and in satisfying both hunger and thirst it is a most humane operation," and as it has relatively little danger, it can be commended even in desperate cases.

Sea Water for an Artificial Serum is warmly advocated by Quinton, who states that a dog injected with more than his own weight of sea water showed no signs of any abnormal phenomena. He has succeeded in keeping white corpuscles alive twenty-eight hours in sea water, three times the length of life of the same corpuscles in the ordinary artificial serum. Sea water must not be injected pure, or concentrated, but isotonic with the organic fluids. The experiments of others that tend to opposite conclusions are unreliable, as the isotonicity was not borne in mind and the osmotic pressure was rendered unequal, thus producing mechanical disturbances incorrectly ascribed to intoxication.—*Semaine Méd.*, May 25.

Movable Kidneys.—Lichty reports twelve cases in the *Philadelphia Medical Journal* of May 14. Ten of these were of a decidedly nervous type; two of these had no nervous symptoms, one had sarcoma and the other disease of the kidneys causing displacement. He believes that it is associated in all cases where there is a decided loss of weight; especially when it occurs with the symptoms of movable kidneys, put the patient on a line of treatment which will restore his normal weight. He considers rest treatment very satisfactory for this, also exercises to strengthen the abdominal muscles. His conclusions are that movable kidneys may be easily overlooked, and unless due to some disease in the organ itself, it is consequent to faulty nutrition and always accompanied by some nervous symptoms; that the treatment of such must be directed toward the correction of the faulty nutrition, the use of a supporting bandage being advised, if this does not bring about disappearance of the symptoms. If the bandage brings about a disappearance of the symptoms and it later seems necessary to wear it continually, the patient should have a choice between this and a surgical operation. If the symptoms do not disappear after the normal weight is gained, or after a thorough trial of the bandage, the kidney should be fixed permanently by operation. If motility is due to disease in the organ itself, it should be removed early if allowable.

Liability of Charitable Hospitals for Negligence of Nurses.—A "private pay patient" was admitted to a charitable hospital to have a slight operation performed by her own private physician, who was also a visiting surgeon on the hospital staff. After the operation was successfully performed she was carried to her room, while still under the influence of the anesthetic, and placed in a bed from which a hot, uncovered water bag had not been removed by the nurse in attendance. To recover damages for the injuries sustained by her right leg thus being severely burned, she sued the hospital. But Judge Cohen of the supreme court of New York holds, Ward vs. St. Vincent's Hospital, March, 1898, that she had no cause of action against the institution, though he suggests that she doubtless had a good one against the nurse who was the wrongdoer. As he reads the cases, a public charitable hospital, which is doing no business for profit, but uses the money received from such pay patients as it has toward the support of the institution, which must still to a greater or less extent rely upon contributions of charitably disposed individuals, is liable only for negligence in the original selection of its servants and, having fulfilled that duty, it is not liable for the subsequent act of such servants, however careless or negligent, unless previous knowledge of unfitness has been brought home to the corporation. Indeed, the judge thinks it may be doubted whether its liability extends beyond the selection of a competent head of the school of nurses connected with it. That the patient is a pay one, he does not consider changes the rule of liability, partly as it has been held in another class of cases that a charitable institution does not waive its exemptions because it charges some patients who are able to pay.

Skill and Care Required of Dentists.—Two distinct acts of malpractice were charged in the case of McCracken vs. Smathers, one in originally filling a tooth upon a live nerve, without proper packing, and the other in improperly and unnecessarily boring through the jaw bone after the party suing for damages had returned for treatment. Whether this malpractice, found by the jury, arose from the want of ordinary knowledge or skill, or the want of reasonable care on the part of the defendant, the supreme court of North Carolina says, March 15, 1898, is immaterial, as both are impliedly guaranteed by one offering his services to the public. The degree of care and skill required, it holds, is that possessed and exercised by the ordinary members of the profession. It need not be the highest skill and knowledge known to the profession, but it must be such as is ordinarily possessed by the average of the profession. It can not be measured simply by the profession in the neighborhood, as this standard of measurement would be entirely too variable and uncertain. "Neighborhood" might be construed into a very limited area. It might contain but few dentists, in sparsely settled sections perhaps only one or two. Both might be men of very inferior qualifications, and to say that they might set themselves up as the standard of a learned profession, and prove the standing of each by the ability of the other, continues the court, would be equally unjust to the profession and to its patients. The words "the neighborhood," as used in this connection, it further suggests, are essentially different from the phrases, "the same general neighborhood" or "the same general locality," which are found in some decisions from other States. But the supreme court expresses itself as satisfied with the instructions given the jury to the effect that the defendant would not be liable if he had exercised ordinary skill and care, and that, if he failed in either of these particulars, he would be responsible for the damages resulting from his own acts alone. Judgment for plaintiff affirmed.

Hypertrophic Pulmonary Osteo-Arthropathy.—In the *New York Medical Journal* of May 14 Hasbrouck reports a case of the above, previously there being but five cases in this country on record. The patient was a male, colored, aged 55 years, a laboring man, and in April, 1896, a small swelling appeared just beneath the right lower jaw, grew slowly, then later enlarged rapidly and in March, 1897, involved the entire tongue and all the glands of the right side of the neck. Respiration, deglutition and articulation were exceedingly difficult and the tongue could not be protruded beyond the lips, as the tumor mass pressed it well over to the left side of the mouth. Later the enlargement affected the hands, feet and ankles until it was impossible for him to close his fists. The knee- and elbow-joints did not take part in this enlargement, but the distal extremities of the ulna and radius of both arms did, as was shown by skiagraph, also the carpal bones. From the skiagraph the enlargement seemed to be purely periosteal in formation, but unfortunately this could not be verified by postmortem. In reviewing the cases he finds that in all but one case there has been some chest lesion, and in this one exception he believes a pulmonary disease was associated. The patient died from general sarcomatous infiltration, and the writer concludes that the disease is secondary to sarcoma, that

in accordance with evidence from previous cases, it is due to some obstructive pulmonary lesion, this being substantiated by postmortem findings, where a hardened mass firmly binding the aorta, the esophagus and trachea into one solid body, in addition to the sarcoma of the mouth and the several sarcomatous areas in the right lung. He also believes that had the primary condition been less malignant, giving the secondary more time, a much more typic condition of the feet and legs would have developed, as they were just beginning to share in the enlargement a few weeks before death.

First Qualified Woman Physician in Europe.—The first qualified woman physician in Europe, as far as is known, was a young Athenian woman named Agnodice. In the year 300 B.C., she disguised herself as a man and began to attend the medical schools at Athens, which it was against the law for a woman to do. She afterward practiced among the women of Athens with extraordinary success. Her secret becoming known, she was prosecuted for studying and practicing medicine illegally. The Athenian women, however, raised so furious an agitation in consequence that the case was dropped and the law repealed. Coming to later times, we find several women who obtained the degree of doctor of medicine and practiced in Europe before 1492, especially in the Moorish universities of Spain. Trotula of Rugiero, in the eleventh century, had a European reputation and practiced in Salerno. At the beginning of the fourteenth century Dorothea Bocchi not only received the degree of doctor but was professor of medicine in the University of Bologna. Since then two other women have been professors of medical subjects in the same university, Anna Mangolini (anatomy) and Dr. Maria delle Donne (obstetric medicine), the latter being appointed in 1799. In the year 1311 an edict was issued in France forbidding surgeons and female surgeons from practicing until they had passed a satisfactory examination before the proper authorities. These female surgeons are again referred to in an edict in 1352.

Allows no Insurance for Septic Poisoning.—In an action brought to recover on a policy of accident and life insurance the evidence tended to show that the insured, while suffering from some serious derangement of his system, which manifested itself, among other ways, by severe toothache, had two of his teeth extracted by a dentist; that there was a diseased condition of the membrane surrounding some of the teeth, and a general foul condition of the mouth; that the teeth were extracted in the usual way, but it caused a rupture of the upper maxillary artery, or a branch of it, from which a violent hemorrhage ensued, and to stop that the dentist plugged the cavities with cotton; that thereafter blood poisoning ensued from the absorption into the system of some chemic poison supposed to have been caused by the propagation of disease germs in the cotton, the seat of the affection being where the teeth were extracted, which blood poisoning progressed to a fatal determination. Under these circumstances, the supreme court of Wisconsin reversed a judgment rendered against the insurance company. It holds, March 22, 1898, Kasten vs. Interstate Casualty Company, that, under a policy insuring a person against bodily injury sustained by external, violent and accidental means, with a provision for payment to a beneficiary or beneficiaries in case of death from such injuries within ninety days therefrom, independently of all other causes, and with a condition that the liability of the insurer shall not extend to injuries, fatal or otherwise, resulting wholly or in part from poison or anything accidentally or otherwise taken, administered, absorbed or inhaled, a death under such circumstances as above stated is within the condition set forth and creates no liability against the insurance company.

Fracture of the Lower Extremities.—Warbasse (*Annals of Surgery* for May) reports observations on the treatment of fractures of the lower extremity during two years, in the Methodist Episcopal Hospital of Brooklyn. This fractures include 111 [illegible] the femur, 34 of the patella, 19 of the bones of the foot and 286 of the bones of the leg. Of the 111 cases of fracture [illegible] the femur, 81 were discharged cured, 7 improving and 2 with soft unions: and of 70 cases of complete fracture of the shaft or neck in which the exact measurements were kept, there was no shortening in 36 cases, less than one-fourth of an inch in 2[illegible] cases, from one-fourth to one-half inch in 8 cases, from one-half to three fourths inch in three cases, from three-fourths to one inch in two cases and two inch shortening in one case. Both femora were broken in three cases and there were two cases of separation of the lower epiphysis. In the majority of cases the treatment applied was the traction apparatus of Buck. In 20 of the cases of fracture of the patella in which the joint was opened by incision over the patella, solid bony union was secured in all, the bone being united by silver wire sutures in twelve cases, by silkworm gut in five, by kangaroo tendon in one and by chromicized gut in one case. In three cases where the patella was encircled by a subcutaneous suture, good fibrous union was secured. In 27 operations in which the knee joint was opened and the bone fragments sutured, there was no septic joint disturbance. Primary healing occurred in all cases and it was demonstrated in all of the recent transverse fractures that bony approximation would have been absolutely impossible without operation because of the intervention of blood clot and torn periosteum. During the latter part of the decade drainage was used less than in the early part and the cases did equally well without it. Lately a method of uniting the bones by chromicized sutures passed through the bone, suturing over these the periosteum with interrupted chromicized gut sutures, then closing the joint capsule by a continuous suture of fine gut, suturing the subcutaneous fascia in the same manner and finally closing the skin with a suture of silk, gave great satisfaction. Of the 280 cases of fracture of the tibia and fibula, 136 were of the shafts of both bones of unspecified location, 28 of the shaft of the tibia and 21 of the shaft of the fibula of unspecified location, 8 of the upper thirds of both bones, 15 of the middle and 26 of the lower thirds, 4 of the upper third of the tibia, one of the middle and 13 of the lower third, 3 of the upper third of the fibula, one of the middle and 30 of the lower third. Of these 180 were simple fractures, 90 compound fractures, of which number 56 were compound comminuted and 5 simple comminuted. In the 19 cases of fracture of the bones of the foot, 10 were fractures of the tarsal, 5 of the metatarsal and 4 of the phalanges.

Colleges.

The Medical Department of the University of Vermont graduated a class of sixty-nine at the annual commencement, June 30.——The graduating class of Bowdoin Medical School, Brunswick, Me., at the annual commencement, June 22, numbered thirty-three.

Hospitals.

The new Finley Hospital was opened at Dubuque, Iowa, June 24.——Henry M. Flagler has offered to the Red Cross all the necessary land and $5000 with which to build a hospital for the wounded just north of the Royal Palm Hotel, Miami, Fla. He also offers the use of a new pier, upon which the hospital may be built, or it may be placed on adjacent land.

Philadelphia.

SPECIALIST IN TROUBLE.—Miss Ella Moore, who has an office at 1228 Brown Street, recently treated a patient for a tumor, and on the patient's death the deputy coroner held a postmortem and found that cancer was the primary cause. The woman, who claimed to be a specialist, was placed under arrest, and at the trial testified that she was in the employ of a firm on Walnut Street who prepared a salve which was said to be a specific for tumors. It is further reported that the specialist who gave the treatment subsequently called in a physician, obtained

money and then disappeared. The woman died in terrible agony. As the specialist's sign read "Doctor Ella Moore, Specialist," her case will be thoroughly investigated by the Philadelphia County Medical Society.

University of Pennsylvania Advances.—Physiologic chemistry some day will be one of the most important branches in the curriculum of all medical colleges. Yale College deserves great credit for having already established this department and inviting the younger men to take hold of the work with great assiduity. Correlated with this branch of medicine stands physiology and therapeutics, and the University of Pennsylvania has not been slow in finding this out, and hereafter students who graduate from that university will have some idea of the physiology of digestion, of electric appliances and of physiologic chemistry, for this department will be devoted to that work. Since extensive college buildings for dental students have been erected, the room formerly occupied by them as an operating-room or clinic will be partly devoted toward instructing students in experimental physiology. In the new department Dr. H. C. Wood will have his private laboratory for this study, and more elaborate experiments can be made than has formerly been the case. Dr. John P. Arnold, a graduate of the university, class of '93, will have full charge of the laboratory for experimental physiology. When these laboratories are completed they will be an improvement of which any college may feel proud.

Etiology of Thermic Fever.—The past week has been one marked by most depressing weather, there being hardly wind enough to turn a weather-vane. Indeed, the heat has never ceased and the humidity at times has almost gone to the saturation point. June 25 was the hottest day up to that period, registering 94 degrees at 4 P.M., with the humidity at 98 degrees, and ending with twelve prostrations. Four days later the morning started off sultry and really seemed much hotter than the thermometer indicated, 88 degrees, but the humidity had risen to 90 degrees, resulting in nine prostrations for the day. The mercury rose higher on July 1, registering 97 degrees, the humidity being 70, and causing sixteen prostrations. July 3, according to the weather report, was the hottest day for that period in twenty-eight years, the mercury rising to the century mark, and that on top of an elevated building, the Philadelphia postoffice. The humidity was 70 degrees. So far there have been reported seventeen prostrations, four of which resulted fatally. The heat, the humidity and the velocity of the wind seem to be most important factors.

Mortality Statistics.—For the week ending July 2 there have been 555 deaths. Of these, 284 were children under five years of age. The number of deaths during the week is an increase of 168 over last week and 64 over the corresponding period of last year. The principal causes of deaths were: Cholera infantum, 114 deaths; marasmus, 28; heart disease, 27; consumption, 47; inflammation of lungs, 27; inflammation of stomach and bowels, 26; nephritis, 19; old age, 16; convulsions, 16; sunstroke, 4; uremia, 5; cancer, 12. The infectious diseases this week were: Diphtheria, 56 cases; scarlet fever, 26 cases; typhoid fever, 10 deaths in 51 cases. Last week the record was: Diphtheria, 9 deaths in 49 cases; scarlet fever, 2 deaths in 40 cases; typhoid fever, 7 deaths in 79 cases.

Appointment of Health Officer.—Some time ago the Health Officer of Philadelphia, Dr. Benjamin Lee, addressed a letter of inquiry to city solicitor John L. Kinsey, in which he desired the information as to whether or not the appointments made by him should also be ratified by council. Solicitor Kinsey replied that since the Board of Health had been a part of the Department of Public Safety of the Municipal Bureau, the appointments connected with the Board of Health would therefore come under the provisions of the act made applicable to the other various departments, and therefore, appointments made by the Health Officer would also have to be confirmed by select council.

Injunction.—Some time ago Messrs. Edwin Chesterman and George M. Streeter filed suit against Isaac B. Seeley restraining him from using that firm's name in business. In the court of common pleas, Judge Pennypacker recently handed down the following decree: "That the said I. B. Seeley is hereby enjoined from the use of the words 'Only Seeley' established since 1859, and impersonators,' and that all postal matter relating to the truss business addressed to Seeley's Truss Establishment with any address other than 1027 Walnut Street, or I. B. Seeley & Co., and also all letters or orders from customers of the old firm of I. B. Seeley & Co. are to be delivered to the plaintiff."

Robert Boyd, M.D., has recently been appointed assistant surgeon in the United States Army. Dr. Boyd will doubtless make a valuable addition to the corps of physicians already there, on account of his knowledge of the diseases of Cuba, he having at one time resided there. Dr. Boyd will report for duty at Tampa, Fla.

Louisville.

Degrees.—Two Louisville physicians have been honored in the past month by having been the recipients of the degree of LL.D. Dr. Jos. B. Marvin had the degree conferred by Georgetown College, this State, and Dr. Joseph M. Mathews, President-elect of the A.M.A., by the Waynesburg College of Pennsylvania.

Dr. Louis Frank has removed his office from corner of Second and Chestnut, where he has been associated with Dr. T. H. Stucky, to 231 W. Chestnut Street.

Hospital.—The annual commencement of the Louisville Training School for Nurses was held in the lecture-room of the Louisville Medical College on the evening of June 15, there being seven graduates.

Wash Fithian, M.D., one of the most prominent physicians of Paris, Ky., was stricken with apoplexy in his office June 28. His condition is not considered very grave.

Alumni.—The annual meeting of the Alumni Associations of the Louisville College of Dentistry and of the Hospital College of Medicine were held in the college buildings on June 28 and 29. Interesting clinics were held, papers read and a banquet held at Fountain Ferry Park.

Commencement.—The annual commencement exercises of the Kentucky School of Medicine were held in Macauley's Theater on June 29, there being 140 graduates. Degrees were conferred by Dr. R. Lin Cave, president of the Kentucky University and Mr. James P. Helm, president of the Board of Regents of the Kentucky School of Medicine. An address was made by Dr. James S. Sweeny, Sr., president of the Board of Trustees of the Kentucky University and by Dr. George R. White, valedictorian of the class. Dr. Geo. T. Harris and Dr. Sidney J. Meyers received the first honors for the fourth and third years respectively.

Hospital College of Medicine.—The annual commencement exercises of the Hospital College of Medicine and the Louisville College of Dentistry were held at Macauley's Theater on June 30. There were 130 graduates. The annual address was made by Dr. C. A. L. Reed of Cincinnati, there being no address from a member of the class, this being the custom at this school for some years. A portrait of Dr. J. A. Larrabee, who was president of the faculty, was placed in the center of the stage draped in mourning. Lewis S. McMurtry has been elected president of the faculty, vice Dr. Larrabee deceased, and has had added to his chair of gynecology and abdominal surgery that of obstetrics taught by Dr. Larrabee. This is a well-merited honor as Dr. McMurtry has a wide reputation as a skillful surgeon. Thos. H. Stucky was elected vice-president and H. H. Grant treasurer. The chair of pediatrics was added to the chair of chemistry now held by P. F. Barbour.

Health Officer.—The monthly report of Health Officer Allen contains some interesting statements: Notices served, 459; nuisances abated 1897; sheep and cattle condemned and killed 21; scarlet fever placarded 7, and diphtheria 1; specimens of milk examined 52, number found below the standard 5; births

reported 79, marriages reported 10. A large number of physicians are receiving the badges issued by ordinance giving them right of way over streets when making professional calls; recommendation is made that water-plugs be placed at certain places in the city, that filthy gutters may be flushed and cleaned; pasters to be used by embalmers to show they are legally licensed are ready for distribution; there were 236 deaths during the month of June against 300 last June; of these 117 were males and 119 females; cholera infantum caused 17 of the deaths and consumption 18, cerebral meningitis 12, and organic heart disease 10.

DUNCAN EVE, M.D., Nashville, chairman of the Committee of Arrangements of the Mississippi Valley Medical Association was in the city one day last week to confer with the secretary and a number of the local committee for the Louisville meeting relative to the meeting of the Association in Nashville in October next.

Societies.

The following recent meetings are noted:

Alabama.—Calhoun County Medical Society, Anniston, July 5.

Illinois.—Chicago Medical Society, June 29; Tri-County Medical Society, Paxton, July 6.

Indiana.—Grant County Medical Society, Marion, June 16; Lawrence County Medical Society, Mitchell, June 23.

Iowa.—Central Iowa Medical Association, Webster City, June 21; Des Moines Valley Medical Society, Ottumwa, June 23; Dubuque Medical Society, June 23; Sioux Valley Medical Association, Sheldon, June 23; Eastern Iowa District Medical Association, Burlington, June 30; Austin Flint Medical Association, Iowa Falls, July 12 and 13; Scott County Medical Association, Davenport, June 30.

Maryland.—Tri-State Medical Society, Cumberland, June 23.

New Jersey.—State Medical Society, Asbury Park, June 29 and 30.

New York.—Broome County Medical Society, Binghamton, July 5; Erie County Medical Society, Buffalo, June 14; Syracuse Academy of Medicine, June 21.

Ohio.—Columbus Academy of Medicine, June 20; Lucas County Medical Society, Toledo, June 17; Tri-County Medical Society, Ashtabula, July 5.

Pennsylvania.—Northumberland County Medical Association, Milton, June 30; Tioga County Medical Society, Lawrenceville.

South Dakota.—South Dakota Medical Society, Sioux Falls, June 15 and 16.

Texas.—North Texas Medical Association, Fort Worth, June 21 and 22.

West Virginia.—Mason County Medical Society, Point Pleasant, June 30.

Wisconsin.—Central Wisconsin Medical Society, Janesville, June 28; Northwestern Wisconsin Medical Association, Stevens Point, July 12.

Yellow Fever.—As we go to press with the last form, we read in the press dispatches of the outbreak of yellow fever among the troops. This need occasion no alarm, as no more efficient hygienic corps exists than may be found in the Army. The disinfection of all baggage of all persons entering our lines from Santiago, whether refugees or prisoners, may have to be carried out.

THE PUBLIC SERVICE.

Movements of Medical Officers.—To report to General Brooke at Chickamauga Park, Georgia, Acting Assistant Surgeon Humphrey Bate, Jr., from Castallian Springs, Tennessee. To the 4th Corps, General Coppinger, at Tampa, Florida: Acting Assistant Surgeons E. H. Morton and Samuel W. Kelley. To the General Hospital at Key West, Florida: Acting Assistant Surgeon T. A. Clayton. To the General Hospital at Fort Monroe, Virginia: Acting Assistant Surgeons Baer Street from Sheridan's Point and Otway W. Rush from Madisonville, New York. To the Hospital Ship *Relief:* Major A. E. Bradley, Brigade Surgeon. To the 5th Army Corps, General Shafter, at Santiago, Cuba: Acting Assistant Surgeons Stanley Warren, Charles C. Marbury, Jas. VcV. Mackall, A. A. Snyder, Jesse Ramsburgh, Henry L. Brown, Jas. T. Corwin, John R. Hicks, Rufus D. Boss, John D. Thomas, Edward J. Meyer, Charles Brewer, Joseph L. Sanford, John W. Wright, H. Cline, Russel W. Chidsey, J. H. Feuss, J. S. White and Ezequiel de la Callé.

Resigned: Major Arthur L. Osborn, Surgeon 6th Ohio Volunteer Infantry.

Nominations, most of which were confirmed on the closing day of the session: To be chief surgeon with the rank of Lieutenant-Colonel, P. F. Harvey, Major and Surgeon U. S. Army. To be chief surgeons of division with the rank of Major: Nelson H. Henry, Assistant Surgeon-General of New York; Victor C. Vaughan, Surgeon 33rd Michigan Volunteers; Charles L. Robertson, Surgeon 50th Iowa Volunteers. To be chief surgeons of brigade with the rank of Major, Royce Day Fry of Ohio; Elmer E. Heg of Washington; Charles R. Parke, Surgeon 13th Pennsylvania Volunteers; Jabez N. Jackson, 3d Missouri Volunteers; Wallace Heff of Ohio; Geo. F. Shiels of California; Wm. S. Bryant, Assistant Surgeon 1st Massachusetts Heavy Artillery; Wm. F. Deniedeman, Assistant Surgeon 22nd Kansas Volunteers; Francis C. Ford of Texas and Lawrence C. Carr of Ohio.

CHANGE OF ADDRESS.

Bozinch, M. F., from 291 N. Carpenter St. to 162 W. Chicago Ave., Chicago, Ill.
Bulette, W. W., from 149 Santa Fe St. to Central Block, Pueblo, Colo.
Childs, C. F., from Decatur to Irondale, Ill.
Furay, C. E., from 2409 N St., South Omaha, to 2237 Seward St., Omaha, Neb.
Franklin, G. W., from Jefferson, Iowa, to Good Samaritan Hospital, Portland, Ore.
Fisk, F. F., from Waterloo, Iowa, to Cedar City, Utah.
Hoff, F., from 510 Walnut St. to 200 Grand Ave East, Des Moines, Iowa.
Hawes, E. E., from 818 Broadway to 164 Washington Ave., Boston, Mass.
Heath, C. L., from Treeville, Tenn., to Lindsay, Ky.
Kerr, A. W., from Keene, Texas, to Woodburn, Iowa.
Lambert, F. E., from Iowa City to Alburnett, Iowa.
Murphy, J. A., from Cincinnati, Ohio, to Wequetonsing, Mich.
McNicholl, T. A., from Sea Cliff, L. I., to 140 E. 30th St., New York, N. Y.
Monroe, J., from Markesan, Wis., to Blackfoot, Idaho.
Morton, G., from Rialto Bldg to 14 E. 11th St., Kansas City, Mo.
Moe, A. J., from 353 Western Ave., Chicago, Ill., to La Crosse, Wis.
Nichols, C. B., from Denver, Colo., to Fort Wingate, N. M.
Perry, J. G., from New York, N. Y., to Ridgefield, Conn.
Purcell, E. C., from Denver to Elyria, Colo.
Roberts, N. G., from Denver to Littleton, Colo.
Smith, C. B., from Decatur to Lorington, Ill.
Smalt, A. E., from Stillwater to Willow River, Minn.
Whittaker, J. T., from Cincinnati, Ohio, to Lakewood, N. Y.
Wood, L. H., from 1005 Boulevard to 2405 Boulevard F., Denver, Colo.
Whitfield, B. W., from Galloway to Demopolis, Ala.
York, F. A., from Galveston, Texas, to Denver, Colo.

LETTERS RECEIVED.

Alton, C. D., Hartford, Conn.; Allen, F. H., Shelby, Iowa; Aufderheide, W. D., St. Louis, Mo.; Atkinson, W. B., Philadelphia, Pa.; Argon & Co., New York, N. Y.; American Impulse Wheel Co., New York, N. Y.; Ashe, W. R., Lebanon, Ohio; Atkinson, H. H., French Camp, Cal.

Brown, R. J., Kansas City, Mo.; Bisjord, J. M., Kensett, Iowa; Bailey, J., Florence, Colo.; Bernd & Co., Henry, St. Louis, Mo.; Battle Creek Sanitarium, Battle Creek, Mich.; Brophy, Truman W., Chicago, Ill.

Christofferson, A. L., Oshkosh, Wis.; Combemale, F., Lille, France; Craig, C. S., Hamlin, N. Y.; Couser, T. C., Sunbury, Pa.; Coyle, John A., Lancaster, Pa.; Colorado Sanitarium, Boulder, Colo.

Eastman, M. E., Terre Haute, Ind.; Evans, Roscoe, Allegheny, Pa.; Emmet, J. D., New York, N. Y.; Elgin Milkine Co., Elgin, Ill.

Fabenfabriken of Elberfeld Co., New York, N. Y.; Frahm, M., Tuscola, Ill.

Gum, F. M., Frankford, Del.; Grasse, D. F., Fargo, N. D.; Gleitsman, J. W., New York, N. Y.; Griffith, J. P. Crozer, Philadelphia, Pa.

Hektoen, L., Chicago, Ill.; Hill, W. H., Newcastle, Mo.; Hodgkinson, C., Ypsilanti, Mich.; Hull, J. F., Badger, Iowa; Hull, Geo. S., Pasadena, Cal.; Huff, W. F., Des Moines, Iowa; Hunter, J. V., Nimrod, N. C.

Klebs, Edw., Chicago, Ill.; Kiernan, J. G., Chicago, Ill.; Ketchum, G. A., Mobile, Ala.; Kimmons, S. H., Fort Smith, Ark.; Keen, W. C., Burkesville, Ky.

Lowe, Geo. S., Ann Arbor, Mich.; Lindley, J. S., San Carlos, Ariz.

Merck & Co., New York, N. Y.; Morrow, F. R., Fayetteville, Ark.; Morris, J. T., Chicago, Ill.; Mulford, H. K., Company, Philadelphia, Pa.; Miller, Y. Y., Brown's Grove, Ky.; McKeldin, R. A. W., Washington, D. C.; Melesio, de Anda, Cocula-Jal., Mexico; McCreery, J. W., Pioneer, Iowa; Miner, C. L., Asheville, N. C.; Murphy, F. E., Kansas City, Mo.

Patterson, C. E., Grand Rapids, Mich.; Parker, E. F., Charleston, S. C.; Parker, E. E., Maxinkuckee, Ind.

Redman, L. H., Scipio, Ind.; Reed, J. B., Topeka Kan.

Shotwell, A. N., Mt. Clemens, Mich.; Sellen, D., Chicago, Ill.; Scott, A. C., Cleveland, Ohio; Shlensky, I., Toledo, Ohio; Sander Mineral Water Company, St. Louis, Mo.; Smith, Kline & French Co., Philadelphia, Pa.; Smith, Jos. T., Baltimore, Md.; Stuart, F., London, England; Shortridge, W. R., Elgin, Ill.; Smith, C. B., Newtown, Pa.; Southall, J. H., Little Rock, Ark.

Talford, P. B., Pittsford, Mich.

Voorhees, S., Newton, N. J.

Woodruff, E. W., Columbus, Ohio; Welch Grape Juice Company, The, Westfield, N. Y.

Yoakam, F. O., Homer, Ohio.

Zeller, H. Rush, Beamsville, Ohio.